ComputerWeekly
Thursday, February 19, 1981

NEWS BRIEF

New route for IBM

MAKING use of some of the expertise built up from its expensive and not very successful System R relational database project, IBM has added an easy-to-use relational facility to its existing DL/1 database system. Called Structured Query Language/Data System, it is aimed at DOS/VSE users.

IBM's bow – albeit a cautious one – towards the relational database philosophy is a significant change in direction, since its major database investment is represented by IMS, which is not geared to the relational approach.

Second chip

INMOS, the sole UK venture into standard microelectronic chip manufacture, announced details of its 64K dynamic random access memory at the International Solid State Circuits Conference held this week in New York. This is the second chip to be developed – the first was a 16K static RAM.

Turnkey services

TURNKEY services for first time users are now available from a new company set up by four ex-Burroughs staff. Called Cardinal Computer Services, it is based in West London and has installed its own Burroughs B80.

Micro networks

NETWORKING with Pets or Apples is faster and cheaper than using large time sharing systems like the IBM 370, according to Dr Michael Bodner, president of networking company Synergon Inc, speaking at the Communications Networks 81 conference held in the US last month. The problem is that too many users do not take microcomputers seriously enough, he said, and regard them as toys.

Olivetti at the double!

IF sex alone held you back from the Avon International Women's Marathon, run through the streets of London last year, you have no excuse for not entering the first London Marathon, organised by Gillette in association with the GLC and AAA for March 29.

Olivetti is providing computing services to work out the time of each runner and prevent anyone from cheating by joining the race part way through.

Every runner will have a bar code on his number bib which will be read before the start and again after crossing the finishing line.

Times will be recorded electronically in the computer as each person crosses the line and a funnelling system will ensure that they are read in the same order.

The first 100 runners will be given printouts of their times, and the others will receive them through the post later.

Five Olivetti P6066 desk-top minis will be doing the work, using largely new software which is currently being written in some haste, and light pens from SB Electronics.

Silvana Cruciata, winner of the Avon Marathon.

Row on sale of company 'on the cheap'

by Kevin Cahill

A ROW has broken out over the purchase by two directors of Maindeck, the DEC maintenance company, of the 80% stake in the company held by Computer Trading.

A rival bidder, Nick Brackenbury of Dartcrest Ltd, alleges that he offered £25,000 against the £20,000 accepted by Computer Trading from winning directors Roger Timms and Ian White.

Brackenbury, a 45% shareholder in and former director of Computer Trading, was outvoted over the sale by the 55% held by Bob Waldie, who accepted the Timms/White offer on auditors' advice. The sale went through on January 6.

A spokesman for the auditors to Computer Trading, George Hay & Co, confirmed a price of just over £20,000 for the Maindeck holding, but added that no formal offer was ever received from Dartcrest. The spokesman agreed that a sum of £25,000 was deposited by Dartcrest "to signify intent" but added that no formal offer was received.

Brackenbury claims he has not been released from personal guarantees he gave to the landlord of Maindeck's High Wycombe premises. He says that he has not been notified of his removal from the board, nor was he told of the board meeting which accepted the Timms/White offer.

He says he will take further action in relation to his interests as a shareholder in Computer Trading and his liabilities as a guarantor.

Contention between Brackenbury and Waldie dates back to November last year when Globe Computers, a wholly owned subsidiary of Computer Trading, went into liquidation. Brackenbury claims to have lost £4,000, and both Waldie and Brackenbury at the time indicated they were considering taking legal action against each other. So far neither has done so.

Since going independent, Maindeck has launched a recruiting campaign and intends to open a London office. Its turnover, according to Timms, is around £250,000.

Privacy Bill to 'test the water'

by Rory Johnston

A LABOUR MP is putting forward an abbreviated privacy bill which would allow individuals to see computer and manual files held by the government on them. This follows a hint from Civil Service Minister Barney Hayhoe, during the debate on Frank Hooley's Freedom of Information Bill, that the administration would not be opposed.

The 10-minute rule Bill planned by Robin Cook (Edinburgh Central) has no chance of passage into law but would "test the water", Cook feels, for a further bill next session.

To be relatively non-controversial, Cook would limit his bill to government files, excluding the private sector, and would exempt police and security records. Later, the law could be extended.

On the future of data protection legislation as a whole, the government is now saying it "hopes to make a statement this session." Cook feels that anything the government came up with in response to the Council of Europe's convention would be very unlikely to come up to the standards he is seeking in terms of rights of subject access. Therefore, he believes, a government bill and his own could stand side by side.

ICFC cash for bureau

by Kevin Cahill

THE bureau and software house Computer Resources has received an injection of £150,000 of equity capital from TDC, the high technology investment arm of the Industrial and Commercial Finance Corporation, ICFC.

"The reason for going to TDC," says Ian Orrock, managing director of Computer Resources, "is to take advantage of the long-term capital planning opportunity that TDC provides. And to be able to go back again and again for specific capital funds for specific projects, from a source which is committed to this industry."

The company will shortly announce turnover of £3.25 million and gross profits of over £250,000 for last year. It employs 200 people and after the injection is owned 75% by Orrock and 25% by TDC.

WP knowledge sharing

by Rory Johnston

UK office system manufacturers are getting together with the consultancies that produced the DoI text processing study to see how best they can benefit from it.

Under a £60,000 contract, funded 50% by the DoI, the consultancies will help manufacturers work together.

The manufacturers include ICL, Nexos, CAP, and Ferranti. The consultancies, which examined a range of user organisations in their study, are Langton, Logica, Arthur Andersen, and CS&P.

EEC aid set for Britain

● From front page

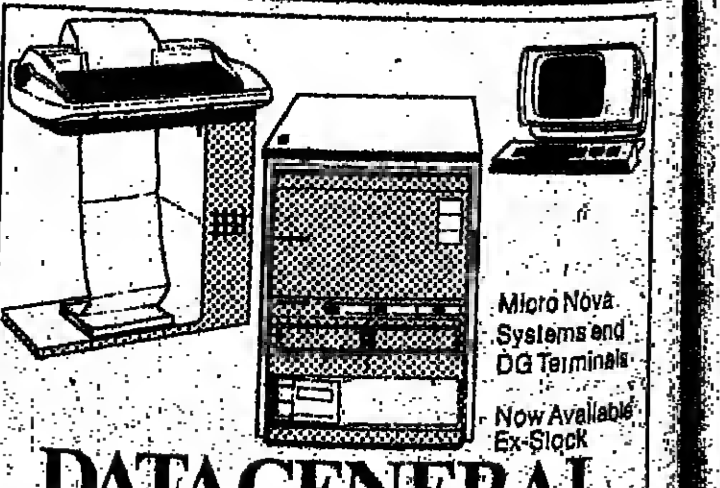
confidence and the other 13 winners are not expected to publish their projects.

A total of £9 million is allocated to this section, mostly as loans, while the remaining £6 million goes mostly to grants to projects specified by the EEC under seven categories: Standardisation, R & D, public procurement, medium-term forecasts, impact on employment and society, confidentiality and security, and software copyright protection.

A requirement for all the awards is that more than one company from more than one country must work together on the projects.

The study of methods and techniques of systems analysis and programming is to be carried out jointly by the National Computing Centre and Gesellschaft fur Mathematik und Datenverarbeitung in West Germany. It will cover specification and validation of software systems, comparison of alternative methods and training, in a project valued at £1.16 million.

The privacy and security study is also to be carried out by NCC and GMD working with l'Agence de l'Informatique, which was set up by the French Industry Ministry at the beginning of last year. Valued at £[illegible],000, this study includes [illegible] of legislation, feasibility, financial implications and impact.



Printed in Great Britain by QB Limited, Sheepen Place, Colchester, CO3 [illegible] and published by IPC Electrical-Electronic Press Ltd., Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

ComputerWeekly
Thursday, February 26, 1981 Number 746 25p

£250,000 grant for UK micro system

by Keith Jones

JUST two months before officially unveiling a microcomputer system aimed at first-time commercial users and the top end of the personal computer market, LSI Computers of Woking has revealed that it has been benefiting from a £250,000 development grant from the Department of Industry since last year.

Awarded under the National Computing Centre's Software Products Scheme, the grant is covering 25% of the £1 million total development cost of the system including hardware as well as systems and applications software.

According to LSI co-owners, Tom Fitzpatrick and David Johns, the project has been too secret to talk about until now.

David Johns said that the remaining £750,000 was being funded over the 18-month to two-year development period entirely from the cash resources of LSI and its associate company, CPU Computers, which is also jointly owned by the two entrepreneurs.

The new machine would be built by LSI at its Woking factory for sale primarily through distributors.

Last year LSI received a smaller £70,000 DoI grant to help fund the development of the M-Two, a small business system with prices ranging from £7,000 to £15,000.

Like this horse ridden by John Francome, developers of the Sell/Pay system for the State-owned Tote betting organisation have found the going pretty rough since they started work about three years ago. But one of the final hurdles before Sell/Pay goes into full operation will be taken next month when it is put on public trial for the first time at the Monday, March 9 Windsor meeting. Punters will be able to check how reliably it calculates their winnings. See Tote story, page 3.

Chappell meets brokers in bid to restore confidence

Crisis at ICL nears climax

by Kevin Cahill

ICL CHAIRMAN Philip Chappell has been meeting brokers and instititutional investors in large numbers in an attempt to restore confidence with City money men in the company's future.

The meetings held by the beleaguered company's chairman are the latest in a series which stretches back to January 13. ICL initially denied that Chappell had attended meetings with stockbrokers, saying that the chairman never attends gatherings of this kind.

A writ was served by the company on Computer Weekly following our front page story on January 29. The writ sought, among other things, to prevent us from publishing the fact that the meetings had taken place.

This week, however, an ICL spokesman confirmed that:

- On January 13 Chappell met prestigious stockbrokers Quilter Hilton, which numbers the current chairman of the Stock Exchange among its members;
- On January 23 Chappell met brokers Spencer Thornton at ICL's Putney headquarters.

The spokesman also confirmed, having at first denied it, that Chappell has gone on to meet brokers Laurie Millbank on February 4, the day after its annual general meeting. The spokesman added that Chappell had "possibly" been at a meeting with Williams de Broe on February 18.

The next in the series is to be with brokers Green & Co and was set for yesterday (February 25), though Chappell was not due to be present. Deputy managing director for finance Murray Stuart was down to speak on the challenge of the future and corporate communications director Alan Benjamin was to argue the competitive advantages of the company.

The meetings so far seem to have left City men slightly happier, though many remain puzzled at why the company did not arrange them through its own four brokers – Laing Cruickshank, Cazanove, Rowe and Pitman and Fielding Newson-Smith.

In addition to the brokers' gatherings, ICL has run a series of lunches – four so far – at which a total 80 City financial and institutional representatives have been present.

Notably absent, however, were some major merchant banks including Flemings, Schroeders and Rothschilds. City sources say that parts of the banking community have already been contacted by Morgan Grenfell, the merchant bank of which Chappell is a former director.

ICL consulted its brokers about the composition of the guest lists, for these lunches, but the meetings

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NEWS BRIEF... NEWS BRIEF

Euronet via viewdata

VIEWDATA terminal users will be able to access databases on Euronet from this summer, with the aid of gateway software to be written for the Euronet node computers by Aregon International, the London-based viewdata marketing firm, with the information retrieval service of the European Space Agency, ESRIN.

All types of viewdata terminals, including French and Canadian versions, will be able to use the gateway, much of the groundwork for which has already been completed under a six-figure contract to add message handling capabilities to the gateway software used by the West German Bundespost's Bildschirmtext viewdata system.

HP centre

WORK has begun on a 100,000 square foot technical support centre for Hewlett-Packard. The Winnersh project should be completed by 1982 and will be a workplace for 300 people.

Nexos go-ahead

THE National Enterprise Board's £40 million three-year corporate plan to develop Nexos into a major office systems company has been approved by the government. Appointed chairman of Nexos is Martin Harris who is deputy chairman of Reckitt and Coleman and a director of Inmos International.

Lawyers' call

A NATIONAL body should be established to promote the use of computers by lawyers, particularly in reducing the costs of conveyancing of property and speeding up searching at land registries. That is the recommendation of the Society for Computers and Law.

Box office aid

THE Royal Shakespeare at Stratford is one of eight theatres all over the UK to be equipped with a jointly specified in-house computer system based on ICL 1500 minicomputer hardware and called Boris, Box Office Reservation and Information System.

Football

SOCCER teams wanting to participate in this year's Summer Computer League should send a representative to the Volunteer public house in Baker Street, London NW1. The meeting starts at 6.30 next Wednesday, March 4.

Computer aid call by engineers

by Paul Fisher

THE 74,000-strong Institution of Mechanical Engineers is calling for an increased commitment to computer aided design and manufacture (CAD/CAM). In a report submitted to the Advisory Council for Applied Research and Development (ACARD) it says it is "deeply concerned to note that mechanical engineering in the UK is not taking sufficient advantage of CAD/CAM."

While welcoming ACARD's contribution the Institute believes that the problems of education and training are more complex than ACARD's recent report on the subject reveals. The engineers' body thinks that the UK is in grave danger of lagging behind its foreign competitors but feels that this could be remedied by education and awareness programmes.

It proposes to bring together educationalists and industrialists to thrash out the most profitable solutions.

Hitachi responds to 3081

by Keith Jones

HAVING led the world until late last year with the most powerful single processor machine for the IBM market, the M200H, Hitachi of Japan has regained that position with the M280H, a uni-processor which should offer a power rating of around 14 mips in its IBM compatible form.

Hitachi measures the performance of the M280H against the smaller M180H giving the new machine a power rating of 3.5 to 4.0 times the M180H compared with 2.5 to 3.0 times for the M200H. The M280H will also be available in a multi-processor version providing the user with well over 20 mips of power.

IBM's "dyadic" 3081 processor and the uni-processor Amdahl 580 announced late last year both roughly match the 10 mips performance of the IBM compatible version of the single processor M200H. Later this year IBM is expected to launch a bigger "dyadic" processor with a power rating that could roughly match the uni-processor M280H.

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Loophole in privacy law, says church

by Rory Johnston

A WRONGFUL court conviction in France, based on incorrect information from Interpol's files, has prompted fears that there is a serious loophole in the Council of Europe's convention on data protection, allowing the non-statutory International Police Organisation to escape its provisions.

The convicted Frenchman, whose one-year suspended prison sentence for fraud was quashed on appeal, demanded that Interpol in Paris disclose and correct the file as

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Intel's 32-bit microprocessor is star of the solid state show

by Louise Kehoe

LAST week's International Solid State Circuits in New York saw four manufacturers, Intel, National Semiconductor, Bell Labs and Hewlett Packard, reveal details of 32-bit microprocessors. Star of the show was the Intel 432.

To a packed conference session, engineers from Intel's Aloha Oregon Division described circuit details and the semiconductor technology of the system. This week at Compcon in San Francisco they will follow up with a discussion of the architecture and software.

The micro-mainframe, as Intel is calling it, is a new microprocessor architecture styled after a mainframe computer. Like most mainframes, it is split into functionally specialised processors and input/output subsystems.

What Intel claims is a unique feature of the 432 is that it can be expanded in software-transparent fashion. This means that performance of the system is a design decision rather than a hardware limitation.

The 432 is designed to be expandable up to systems of 255 processors. Though applications for such a large system are hard to envisage, Intel suggests they will be multifunctional. Examples it gives are a banking transaction system capable of handling data security, online funds transfer, accounting, credit authorisation and other functions simultaneously, or a point of sale system which handles stocktaking and ordering.

Bell Labs' 32-bit processor is built in a new form of low-power CMOS technology. In a single huge chip it implements the instruction set of a commercially available minicomputer (Bell won't say which). It is to be used by Western Electric for a range of telecommunications systems.

The processor has been fabricated, after a surprisingly short 3-month development phase, by means of the extensive use of computer-aided design techniques. Like Intel's 32-bit processor, the Bell device uses regular structures such as programmable logic arrays and cell matrices on the chip to simplify design.

The chip will go through a scaling process to make it smaller before it goes into general use.

National Semiconductor's 32-bit processor is called the 16032. The CPU part will be sampled by June and a memory management unit, clock generator and interrupt control unit will follow later in the year. The bilingual 16-bit processor of the same family, the 16016, will be sampled in the fourth quarter of this year.

What was to have been the 8-bit 16000 processor, the 16008, has been dropped, says National.

The 16032 had a 32-bit internal data path and 16-bit external data path. It can address directly up to 16 megabytes of unsegmented memory.

With the floating point processor and the memory management unit, the 16032 can execute a minicomputer-type construction set. National puts the performance of the 16032 at roughly half that of a VAX minicomputer.

Hewlett Packard's 32-bit processor was the only true VLSI device with 450,000 transistors on a quarter-inch square chip, making it probably one of the most complex examples of VLSI outside a laboratory.

Inmos was well represented at the conference and marketing vice-president Douglas Rankin explained that samples of its 64K dynamic RAM will be available mid-year and full production will begin early in 1982. Meanwhile the company is stepping up production of its 16K static RAM. Rankin said that output of components is gradually increasing and will take a leap up when the company's large-scale production plant at Cheyenne Mountain in Colorado comes on stream. An official opening for the plant is scheduled for June.

Inmos will, nevertheless, enter the 64K dynamic RAM market very late. According to industry sources, Japanese suppliers have already qualified their chips with some major US customers. Intel has recently entered the market and most of the large US and Japanese manufacturers are sampling its chips.

Wordplex tries its wings in the UK market

by Rory Johnstoo

TAKING advantage of its new-found freedom from AES, Wordplex has set up a direct sales organisation in the US in an effort to make up for its hitherto poor showing in the American word processor market.

The Canadian-owned company is now being directed internationally from the UK, but continues its hardware development and manufacturing in California.

Both AES and Wordplex products were meant to be sold in the US by Lanier, but this Atlanta-based office equipment supplier had put much more effort into the down-market AES standalone machines, than into Wordplex's products with their emphasis on shared logic. Now a Wordplex sales office is being opened in Los Angeles and other big cities will follow shortly.

A succession of new products to be launched at Hanover Fair in April is expected to be competition for the low-cost standalone word processors recently launched by IBM and Wang. The hardware will be "fundamentally different, but compatible" with existing products, said International president Harry Mallinson, emphasising that Wordplex would still concentrate on up-market systems. The main trend in WP was not towards small standalones but to shared-resource, he thought.

Wordplex is now offering a Basic interpreter on its standalone machines, supplied by Microsoft in the US. In communications, a 3270 emulator is also available. While sales of word processors to manufacturing industry have fallen off, they are still strong in financial institutions and local government, Mallinson said, giving turnover for the combined company as £17.2 million for 1980, up from £9.1 million in 1979. Of the £17.2 million, about 70% was Wordplex equipment.

Profits are up to £905,000 from £571,000. The parent Canada Development Corp intends to increase the capital of the Wordplex group by 10,000,000 Canadian dollars to help the firm continue its $5 million a year R&D investment.

The company is looking at local networks, but Mallinson commented: "I would have severe reservations about making a particular commitment now to a specific system."

Maintenance firm boom

by Rory Johnston

THE recession is proving to be a boom time for Hitchin-based Computer Field Maintenance, to which an increasing number of users are turning in order to reduce maintenance charges. CFM's pre-tax profits for 1980 are £400,000, up from £246,000 in 1979, on a turnover of £4,750,000.

CFM offers customers savings of up to 30 per cent on charges for maintenance contracts on a range of mainframes and plug-compatible peripherals. Some customers with mixed installations also find it an advantage to have just one maintenance organisation, thereby avoiding reverse demarcation disputes, CFM finds.

The increasing business has come as a bit of a surprise to the company itself, which budgeted for a 1980 turnover of £4.3 million, up from the actual 1979 figure of £3,532,000. The firm now has about 1,300 contracts, 200 engineers, and 20 service centres.

Relations with manufacturers tend to be variable; the firm is understood to be getting along fine with IBM and Amdahl, but not well with ICL.

Goodman

Four bidders for liquidated Infotec

By Paul Fisher

AS potential purchasers of the Infotech group come forward, with one firm bid already on the table, the complex wrangling which has characterised the collapse of the training and conference organiser is continuing amid writs, allegations, rumour and gossip.

Infotech went into voluntary liquidation on February 6 with debts which are now put at over £1 million and creditors including Trust House Forte, Grand Metropolitan Hotels and a number of former lecturers at its courses and conferences. The liquidation was initiated by the board, on which chairman Clive Wilkins, managing director Chris Boon and director John Blake each hold 20% of the company's shares. This decision went against the wishes of the 40% shareholder and founder Roy Goodman.

In addition to the one firm offer, three other substantial bidders are interested, according to the man appointed to "supervise the cessation of trading", Peter Mason of auditors Floyd, Nash & Co.

Included among those thought to be interested are VNU (the Dutch publishing company which owns Computing Informatics and Datalink) and Philips as part of a Dutch consortium, Creative Strategies, Online Conference, ICL and former Infotech subcontractor CMS. Boon has said the deadline for offers for the company was Tuesday, February 24.

One of the problems of the sale is that Infotech has few tangible assets other than its name, the ownership of its training courses, and conferences (the most well known of which are the State of the Art conferences) and its mailing lists.

Mason is anxious about "staff taking information and thinking they can set up a similar prise", and at least some tech lecturers have been proached by companies Programmer Training and Op ing Training.

Founder Roy Goodman that over 30 people have ing lists, and alleges that tial sums have been spent fees in the space of a year attempt to resolve control company.

Goodman's latest move his attempt to appoint his nominee, accountant Sonj hen, to handle the liquidation also replace Mason. Cohen on Infotech's previous liquid in 1971 and 1975 and Good wants him in this time claims the other directors starving him of information.

Goodman says he is u seven-year worldwide programme with his Know Now and that he immediate intention of resuscitate Infotech.

Mason expects his position be clarified legally at the meeting on March 11.

Meanwhile two lawsuits standing. One is a claim tech for unpaid fees of £90,000 by CMS, a which provided lecturers for tech's courses.

The other is a writ served Infotech on a concern called This appears to have been u middle-man to pay its and is allegedly owned by shareholders and former director John Blake. The over the alleged disappearance between £45,000 and £60,000 four years during the contracting lecturers in operations. Blake has refused comment, and is currently lable.

ComputerWeekly
Thursday, February 26, 1981
Vol 30 No 746
100,000 circulation — the highest of any computer journal in Britain
IPC Electrical-Electronic Press Ltd, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Telex: 892084 BISPRS

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Circulation Dept
IPC Business Press (S&D) Ltd, [illegible] House, Perrymount Road, Haywards Heath, Sussex. Tel: 0444 59188.

BRANCH OFFICES
Birmingham: Lindon House, 202 Walsall Road, Birmingham B42 1BA. 021-356 4838
Manchester: Grove House, Skerton Road, Old Trafford, Manchester M16 0WL. 061-872 8861
New York: 205 East 42nd Street, New York, NY 10017. (010 1 212) 867 2080

Publishing Director: D A G Thomas. Editorial Director: Chris Hipwell.
Published weekly on Thursday. Registered at the Post Office as a newspaper. ISSN 0010-4787 © IPC Business Press Ltd 1981

First trial of troubled Tote system soon

by Keith Janes

MORE than 18 months after it was originally expected to make its debut, the first trial of the Tote's Sell/Pay computer system for race courses is due to take place at the Windsor meeting on Monday, March 9.

With costs originally estimated at £3 million, development of Sell/Pay over the last three years has been dogged by reliability and performance problems that the Tote is not prepared to discuss in detail. But they were sufficiently serious for Micro-tote, a stop-gap approach based on microcomputers, to be put together hurriedly last year by Control Systems of Uxbridge, the main contractor for the computerisation project.

Two transportable Micro-tote systems are now in full operation and have been used at 30 race courses around the country, according to the Tote. They provide many of the facilities of Sell/Pay including automatic ticket issuing at each Tote window, continuous display of odds during betting and the recording and totalling of all bets — win, place and forecast. But major Sell/Pay features missing include the automatic calculation of each punter's winnings and management accounting.

Sell/Pay is supposed to run on dual Digital Equipment PDP-11/34 processors linked to VDU and ticket issuing equipment at each Tote window. Six complete 11/34 systems have already been bought by the Tote along with the terminal equipment and six air-conditioned trucks. The latter are intended to carry all the kit to race meetings around the country where it will be plugged into permanently installed wiring.

The Tote was unable to say when all six systems would be in full operation, but discounted rumours that some of the equipment — possibly two complete vanloads — was to be scrapped.

At the same time the Tote said that it planned to use Micro-tote indefinitely, at least at smaller race meetings. The system runs on Intel machines that plug into the terminal equipment in much the same way as the 11/34s.

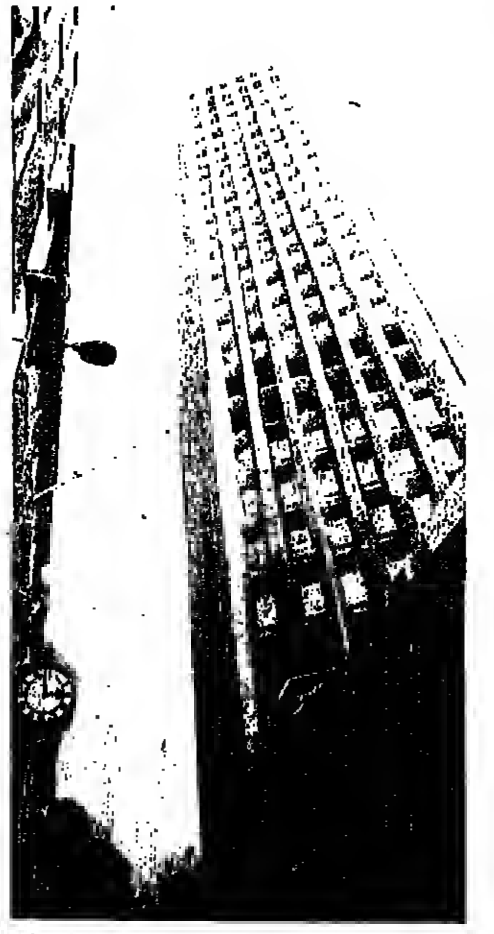
Micro-tote operations have not been entirely trouble-free. Crowds at the last Boxing Day meeting at Kempton Park were angered when Micro-tote went down and prevented them from placing bets.

According to the Tote the cause of the trouble was a big drop in the voltage of the mains power supply and was not due to any fault with the Micro-tote hardware or software.

The Tote's computer development operation is based at Kempton Park and the course has been used for testing new facilities. The Kempton management said that its customers had "mixed feelings" about Micro-tote, mainly because there were still delays of up to 30 minutes in paying winnings.

In its report for the year ended March 31, 1980, the Horserace Totalisator Board, the full name for the Tote, said that an intensive evaluation of the entire computer system was made in the autumn of 1979.

This move followed tests which showed that the system as originally conceived in 1975 was incapable of performing at adequate speed and reliability.



The Stock Exchange, where Altergo's system will help dealers to make quick decisions.

Altergo takes stock of the share market

By Claire Gooding

SYSTEMS house Altergo is winning huge banking contracts with its major new applications system aimed at the investment management and accounting market. One multinational US-owned bank has already signed, and other UK and European implementations are under way.

The system, called Orbis Portfolio Manager, can deal with different currencies and four different languages — English, German, French, and Italian.

Essentially, it keeps track of investment transactions and reacts to international dealings. This allows online investigations and keeps the people making decisions on investment up-to-date with immediate information on the market.

"Banks can lose millions of pounds on international dealings simply because they don't have the facts at the right time; even a small delay in passing information or acting on it can mean a big loss," explained Altergo Business Systems marketing manager Bob Ali.

"A real time system like Orbits means that an investment bank is geared to cope with fluctuations on the market. All the details on investments and current rates are available, so that it is possible to make an instant evaluation of a portfolio.

"It also supplies critical management information, so that managers can analyse the performance of a portfolio, the average cost of investment, the gain or loss made, by market or by currency. It is looking forward to the day when the manager will do the transaction with the bank through his own terminal on the desk — customer integration as its known in the US — so its really part of a long-term plan."

Honeywell expects £1.5 million boost from Italia printers

by David Bannister

THE high-quality microcomputer business system market is expected to provide Honeywell's Italiao OEM printer division with £1.5m of business by the end of next year, according to a company spokesman last week.

There are now four main models in the company's catalogue, all matrix printers, said to be of high quality. Two of the models at the lower end, the S10 and S30, were launched at last year's Compec. It is in these that the greatest potential lies, according to Giuliano Nicotra, who is in charge of the sales of equipment in this country.

Nicotra is quick to point out that Honeywell Italia has concentrated on three main elements — the mechanism, the print head and the electronics. This, he says, has reduced the cost.

It has, perhaps more importantly, led to the company having greater control over the quality of the devices. He stresses the human factor in design, and the results of this are evident in the new products — for example, both models are remarkably quiet.

Nicotra describes the market for this kind of printer as being in the 20,000 unit league. With planned sales of 3,000 units this would represent about 15 per cent of the total market.

Some 150 printers have already gone to end users through the five OEMs Honeywell Italia has in this country. From that figure it could be an achievable target. But there is more to come. Some new products will be joining the range some time later this year, and "they will make a big difference," says Nicotra.

BA air cargo system

by Chris Youett

BRITISH AIRWAYS' Birmingham cargo depot is pioneering a bargain worldwide air cargo handling system, which is to be installed at Heathrow, Manchester and Glasgow airports later this year. By using other parts of BA's network, the cost of the systems has been brought down to a modest £1 million.

At Heathrow Airport it will be possible to overlay the system with the Customs Clearance system. This could cut the number of official cargo transaction documents or manifests for every cargo transaction from 16 to 14.

The system is based on Videcom video terminals and Texas Instruments TI810 printers, and the aim is to cut the present paperwork that is necessary for international trade. BA has a timetable of two years for getting all its stations linked into the system.

Apart from providing the paperwork worldwide, the system can also be used to trace missing cargo up to 28 days after it is lost and will produce statistics on a daily, weekly and monthly basis, and speed up billing.

At present, only exports are being processed but imports will be put on the system by Christmas. The system can also handle cargo for other airlines

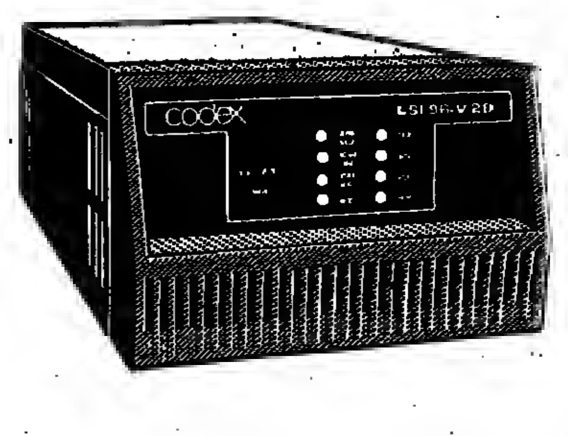
Litton sues for $600 million

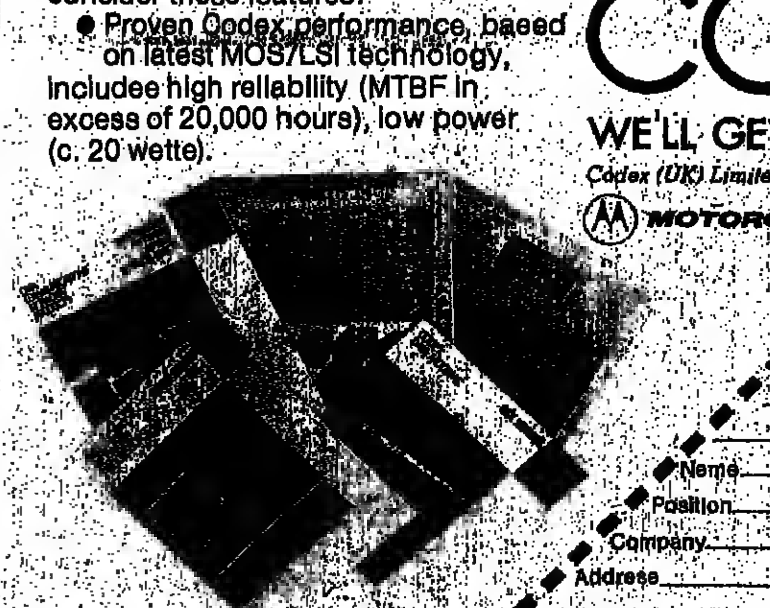
by Donald Kennett

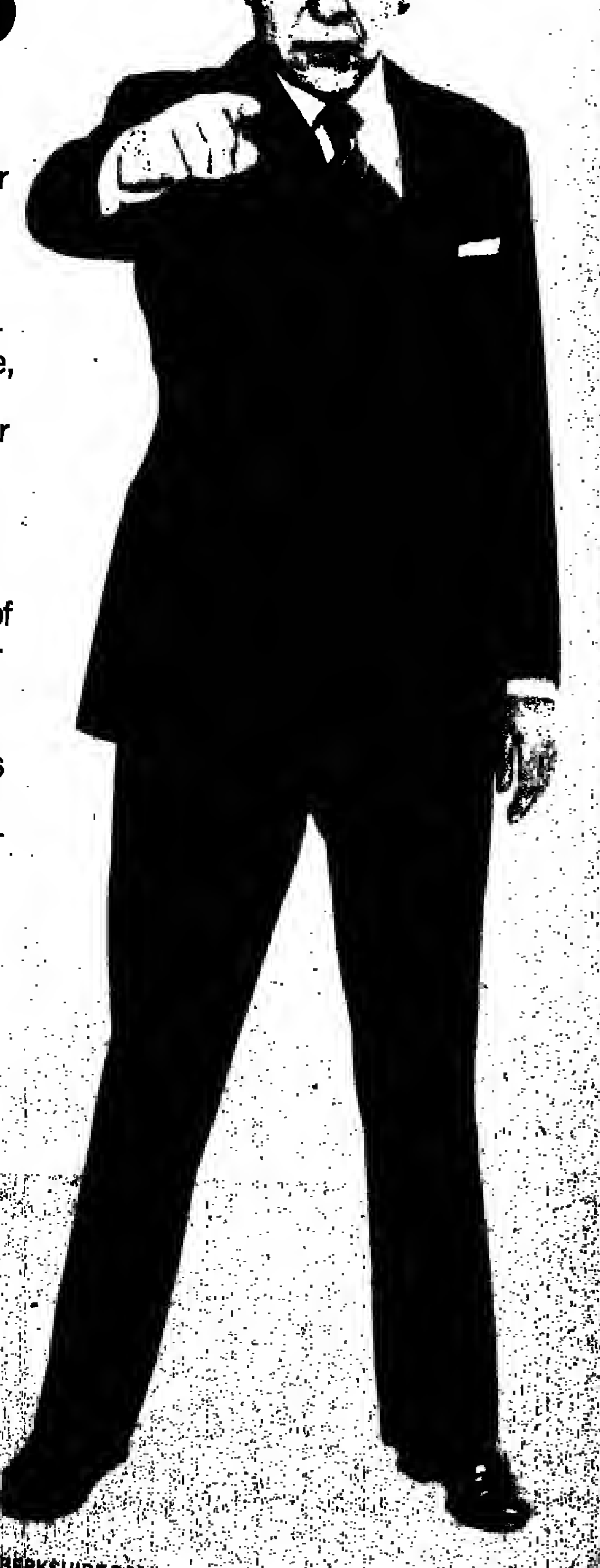
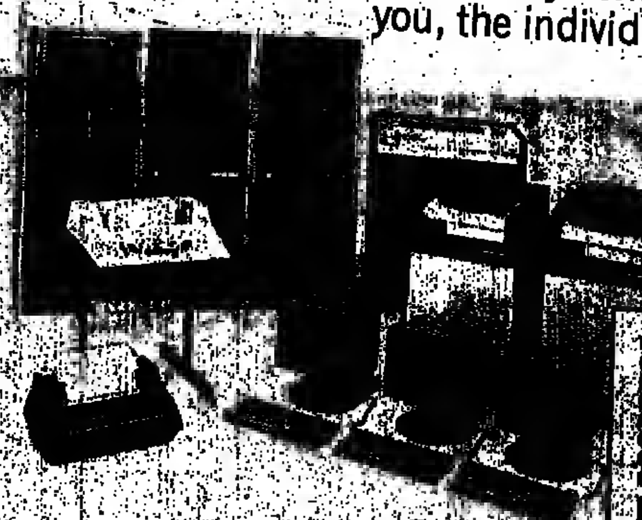
THE judge in a US anti-trust case brought by Litton Industries against AT&T, has changed his previous ruling and allowed Litton to introduce evidence designed to show that AT&T had coerced IBM out of selling telephone equipment in the US. The alleged coercion is said to have included a threat to reduce or withdraw $100 million worth of orders a year.

Several telephone equipment makers have filed anti-trust suits against AT&T and several allegations have been made that IBM and AT&T have agreed to stay out of each other's markets. Litton wants $600 million in damages.

An AT&T spokesman said that Litton's allegations were not relevant to its case and an IBM spokesman said that the decision not to sell telephone equipment in the US so far had been based on business reasons.





Honeywell puts the accent on security

by Keith Jonea

INCREASED security is the main feature of a group of new systems software products announced by Honeywell for its Level 64/DPS medium-scale mainframe line. New hardware features include an increase in main memory size from two to four megabytes and a 1200-megabyte per spindle drive, the MSU 0555.

There is also a new package of software aids called Transit for translating files and programs of IBM, ICL, NCR, Burroughs and Univsc systems into 64/DPS files.

This latest group of enhancements for Level 64 follows closely on the launch of the Datsnet 8 network processor which handles all data communications on behalf of a 64/DPS host and forms part of the Honeywell Distributed Systems Architecture which was formally unveiled last October.

One of the new systems software products, Systems Access Rights, is an optional extension to the GCOS operating system which allows the owner of a file to define various levels of access rights to other users. Another, General Access Control, allows protected access to the same file simultaneously from batch jobs, transaction jobs and interactive users. Honeywell says that it automatically resolves conflicts which may arise when two or more users attempt to update the same record or page of a file.

A third new product, Interactive Resource Monitor, is designed to increase the amount of interactive work that can be processed using the same memory resources.

Also new is System Behaviour Reporter which monitors and analyses the usage of Level 64 systems resources and records all information in graphical form.

Level 64 machines are manufactured in France by CII-Honeywell Bull at Anger.

Olivetti new chief

OLIVETTI Computers, one of the three firms in Europe selling IBM compatible versions of Hitachi's large scale mainframes (see front page) has a new man in the managing director's seat at its Rome headquarters. He is Mario Pedretti, formerly director of marketing with the parent company and a one-time country sales manager for IBM Italy.

Pedretti replaces Lorenzo Bozio who is being retained by Olivetti Computers as a consultant, primarily to advise on how the company should handle its dealings with Hitachi in Japan.

Hitachi is known to be embarrassed by having three separate firms selling its big-machines in Europe.

Olivetti Computers has not achieved the sales success with the Hitachi built machines that it originally hoped for.

Legal technicality clears CSC

THE US government has lost the latest and possibly final round of its legal action against Computer Sciences Corp, CSC, in which it is charging the giant computer services firm and six of its employees with deliberately overcharging for its Infonet time sharing facilities. But they got off on a technicality.

In the US District Court at Alexandra, Virginia, Judge Richard Williams dismissed all charges against the company and five of the individual defendants on the basis that unauthorised people were present at the hearings of the Federal grand jury that brought the indictment.

Charges against a sixth defendant were dropped because the government failed to inform him that he was under investigation when he appeared before the grand jury. In this way his constitutional rights were violated.

The charges against Computer Sciences were first levelled in October last year and led to a ban on the company bidding for any new government contracts, a serious blow because government work provides the firm with the majority of its revenues. Early this year the ban was lifted on bids for all new contracts except time sharing.

While existing Infonet business with the government brings in a substantial $40 million or more, it is quite modest in comparison with Computer Sciences' contract work for US government departments which brought in a formidable $243 million in the year ended March 28, 1980.

The Wangwriter comes to the UK

UK launch of Wang entry in low-cost word processor war

by Rory Johnston

WANG's entry in the low-cost word processor war, the Wangwriter, has now been launched in the UK, with deliveries to the Massachusetts supplier's existing large customers starting in June. A special sales organisation is to be set up by Wang in the summer to deal with small, first-time users, of whom the company estimates there are 5 million worldwide and only 5% currently have word processors.

The General Business Systems organisation, as it will be called, will also sell minicomputers. While first-time users are an important future business, for the moment 60% of Wangwriter sales are expected to go to small departments and branches of large firms.

The Wangwriter, costing £4,350, is a stand-alone screen word processor with for the time being only a single mini-floppy disc drive. Thus the taking of security copies has to be done one document at a time, a cumbersome process. A new relatively slow design of daisy wheel printer is included in the price, with the unusual feature of ejecting the paper underneath.

Wang is following IBM's lead in minimising the training and support provided for a machine that it sees very much on a "plug it in and use it" basis. Purchasers are provided with self-teaching programs and diagnostic discs to help trace hardware faults. Most support is expected to be done by telephone.

Operating procedure is similar to Wang's existing ranges of word processors but in a departure from the company's policy hitherto the machine is not directly compatible. Thus transferring documents from the Wangwriter to an OIS word processing system requires attachment of a special "Minidiskette Workstation" to the OIS, since the latter does not use these discs. The workstation with its screen, keyboard and disc drive can also be used for editing.

Hitachi responds to 3081

• From front page

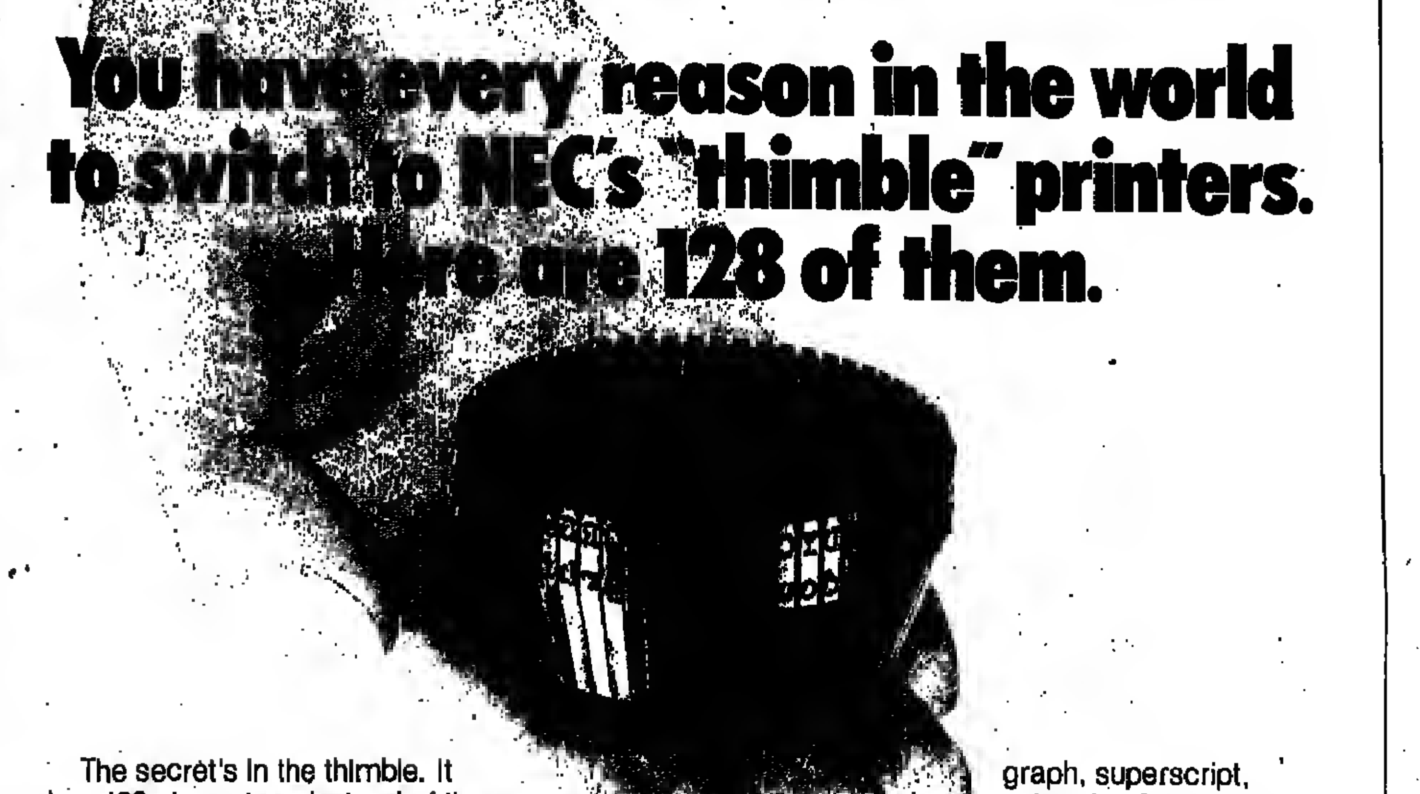
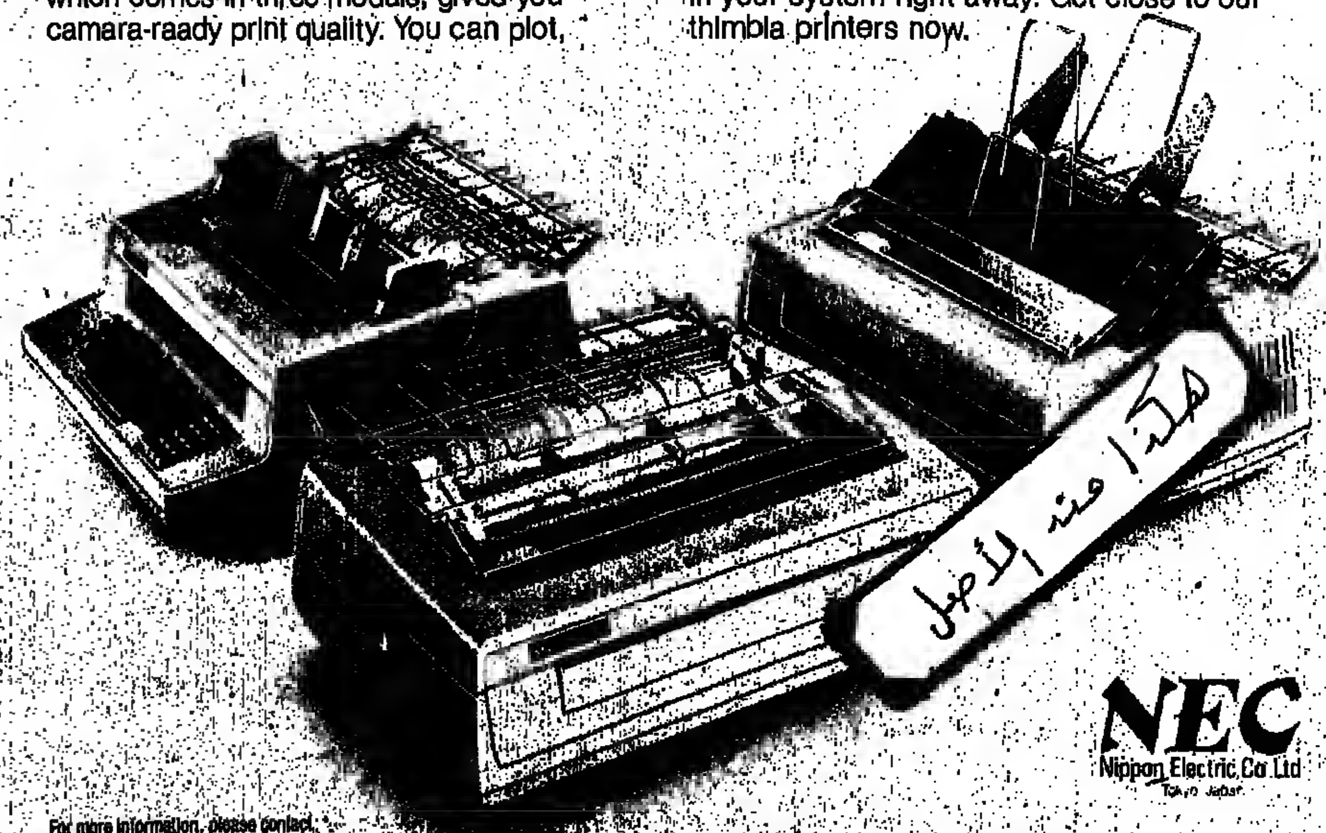
Other key features of the air-cooled M280H include a main memory expandable up to 32 megabytes and up to 32 channels.

No announcement has been made yet about the marketing of the M280H in the West by any of the three firms that already sell IBM compatible versions of the M180 and M200H — National Advanced Systems, BASF and Olivetti.

Much further down the performance scale Hitchi has launched a second machine, the M240H, which is said to offer up to four times the performance of the M160H. The latter computer, which has been around for several years, roughly matches the now obsolete IBM 370/145.

An IBM 3380 compatible version of Hitachi's 1200 megabyte per spindle disc drive, the 8598, is likely to be available in the West from at least one of the firms that sells its big processors. National Advanced Systems is likely to sell the drive and BASF also hopes to offer it.

Last year BASF announced that it intended to sell the AP and MP versions of the M200H as the 7/80AP and 7/80 MP. Earlier this month NAS announced its own IBM compatible version of the dual processor M200H as the AS/9000 DPC for delivery at the end of 1981. It will come in both tightly and loosely coupled versions along with NAS added features like extended channels and main memory, data streaming support and MVS/SP Assist. Olivetti Computers, the third vendor of the M200H in Europe, has yet to announce a dual processor.

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Western Europe services market 'will catch up with the US by 1983' – report

by Keith Jones

THE Western European market for computer services will be as big as that in the US by 1983. This is one of the main conclusions in the fourth annual European market survey* published by the European Computing Services Association.

Prepared for ECSA by the London office of Quantum Science Corp, it gives $7.1 million as the total 1979 user expenditure on computing services in Western Europe, and an overall growth rate prediction of nearly 16% for 1979-1984. Batch services, which now account for more than 38% of all business, will grow by a relatively sluggish 8.9% a year but remote services will zoom ahead with an 18% growth rate.

Software development services will enjoy an average annual growth of 18.1% while sales of software products, no doubt encouraged by the desperate shortage of programmers for custom software development, will lead the field with an 18.9% growth.

Breaking down the market by supplier, the survey reveals that IBM is still the largest services supplier in Europe.

French computer services companies account for 13 out of the 30 top suppliers of services in Europe and occupy five of the top ten positions. Only four UK firms make the top 30, and only five US-based companies. The survey explains that US suppliers dominate particular market sectors like time sharing services and system software products.

Competition from small business systems suppliers is identified by the study as one of the main problems experienced by services suppliers and it sees major growth opportunities for all services suppliers in the integration of hardware and software systems.

The expenditure on hardware for resale as part of complete systems was found to total $600 million at end user prices in 1980.

Total employment in the European services industry was 161,000 with France accounting for 34,500 and the UK 34,000. Employment in West Germany was only 18,100.

*The Fourth Annual Survey of the Computing services Industry in Europe 1980. Price to contributing members of ECSA, £43. To other ECSA members, £65. To members of other computing services associations, £130. Quantum Science Corp, 16 Charles II Street, London SW1Y 4QU. Tel: 01-839 5347.

Japan eases restrictions

JAPANESE business for US computer services firms, in particular time sharing suppliers like Control Data, General Electric and Tymshare, should benefit from an easing of Japan's restrictions on the sale of US originated services.

Until now US firms have only been able to offer trans-Pacific services from one site in the US, restraining them to offering only about 10% of all the facilities they could make available. That limitation has now been removed.

Clive Sinclair with his pocket TV.

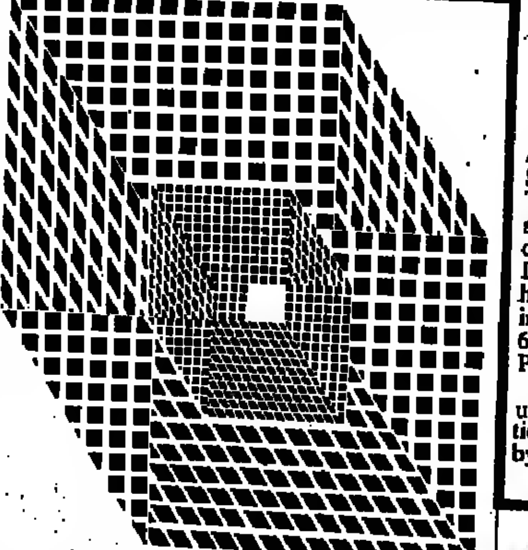
Pocket TV for £50 by 1982

by Brandon Gamester

CLIVE SINCLAIR (left) holds up the tube for his £50 miniature, flat-screen TV. By the end of 1982, a new factory in Dundee will be geared to produce 1,000,000 sets a year. Production is planned to be increased through to 1985, when 1,000 people will be employed on the project.

Tony Rand, general manager for Sinclair Research, told Computer Weekly that the TV should carve out a completely new market in the same way as did the radio when it changed from being a household asset to a personal one when it became transistorised.

The £1 million-plus invested in R&D to perfect the design of the cathode ray tube and the techniques for automating its production were shared between Sinclair Research and the National Research and Development Council. Sinclair's portion has been raised largely from profits on its ZX80 £100 microcomputer which was launched 12 months ago and is currently being produced at a rate of 10,000 units a month, 70% of which are being exported.



London Polys order 200 VDUs from Data Type

AT least one firm in depression-hit South Wales is doing well. Data Type Terminals of Cwmbran is to supply four of the five Inner London Polytechnics with 200 of its DT2 and DT22 VDUs. Data Type has also been awarded a three-year inflation-proof contract to service 650 terminals used by the London Polys.

The VDU order includes 20 units equipped with a graphics option developed and manufactured by Data Type itself.

The four Polys are City Polytechnic, North London Polytechnic, the Polytechnic of the South Bank and the Polytechnic of Central London. Each runs a Digital Equipment DECSystem 10 mainframe, Central London also being served by a DEC VAX-11/780.

The Data Type DT2 provides a 12 x 10 dot matrix character resolution and its keyboard includes a numeric pad. The DT22 also offers 11 special function keys which can be preset to increase flexibility.

£60,000 software boost for Xoren

by David Casey

UNDER the National Computing Centre's software products support scheme, £60,000 has been made available to Xoren Computing to aid development of its IPL-11 Interprocessor Link package.

Designed as a low-cost data transfer package between two DEC computers – either of which may be a PDP-11, LSI-11 or VAX-11 machine – IPL-11 is available currently for four DEC operating systems.

Software versions have been released for RSX-11M, IAS, VAX/VMS and RT-11, and Xoren plans to launch an RSTS-E alternative later this year.

In common with many other software tools, the IPL-11 package was developed initially to meet a specific data handling requirement. As part of a software development contract Xoren needed to transfer programs and data from its own RK05 discs to the RL01 packs used by a client.

Establishing a modem or acoustic coupler link between the two computers was only part of the solution, however. Error-free data transmission would be essential if the IPL-11 packages were to be viable commercially.

Incompatibility of the DEC operating systems added a third dimension to Xoren's problems: to make any impression on the 100,000-strong UK user-base for PDP-11s, the package would have to transfer data between different operating systems and sharply contrasting file structures.

IPL-11 package specification has succeeded in scaling these obstacles and the system carries full error-checking capabilities to CCITT recommendation V41; retransmitting bad blocks.

If a telephone link had to be re-established after a complete breakdown on the line IPL-11 would continue transmission from the last block read over the circuit correctly.

Xoren claims a significant benefit for IPL-11 over other data communications packages. Earlier attempts at transferring files between two computers had closed off both machines while files were being sent down the line.

Under the Xoren IPL-11 system, other jobs or tasks are permitted to run and each computer terminal is freed immediately the software link is established.

The effect is to produce a package which can merge into the computer's operating system in a way which makes it transparent to other programs running at the same time.

While two machines may be linked directly, the IPL-11 package was also designed to handle asynchronous traffic.

By launching the packages at £540 for each of the two five-year licences needed to link a pair of PDP-11s, Xoren managing director John Jarvis sees a major market among DEC OEM distributors who need to communicate with their own clients.

France close on US heels

FRANCE's electronics equipment industry reports a 28.2% increase in turnover for last year with a total of 16.3 billion francs, of which over half represented exports.

The industry, with a payroll of 50,000, now ranks as the world's second biggest, just behind the United States.

Georges Boudeville, president of the Federation of Electronic and Radio-Electric Equipment makers, said he was optimistic for the outlook during 1981. But profit margins were shrinking under tough American competition, he added. Orders in hand at the beginning of this year totalled 28 billion francs, of which 16.2 billion were for export.

Boudeville said that the French military establishment provided 64% of orders last year. But this source of prosperity was likely to diminish over the next few years.

The electronics industry federation's chairman warned that the French state's share of investment was now 38% compared with 55% a year or two ago.

BEE lives again

THE first staging of the new Business Efficiency Exhibition is to be held next year at Earl's Court in London, from June 14 to 18. The old BEE was absorbed into the International Business Show in 1977 and moved from London to the NEC in Birmingham. Experience has shown that there is still a need for such an exhibition in London, says the Business Equipment Trade Association.

Rory Johnston reports on the remarkable results of a collaboration between man and machine in Pasadena

Computer is 'leading the artist into new trains of thought'

THE debate goes on, in these columns and elsewhere, over whether computers can really create anything new.

The issue is particularly contentious in the field of art, where computers are being programmed to produce pictures, pieces of music, even books.

As the little computer-controlled cart trundles round the floor drawing squiggly lines with a felt pen, the onlookers argue endlessly over whether the resultant pattern is the creation of the programmer (in which case the computer did not produce anything) or is random (in which case it is not art) or is something else again.

DAVID EM: Fascinated by the nature of electronic light.

Into the midst of all this a breath of fresh air is being blown by a Californian artist who is producing paintings of startling originality using a computer purely and simply as a tool, a kind of Space Age canvas and palette. But, he insists, he would never have come up with the ideas in the pictures were it not for the computer, which provides new capabilities, stimulation, and even a strange power of its own to direct the way a picture is going.

David Em has the improbable job title of Artist-in-Residence at the Jet Propulsion Laboratory in Pasadena.

What need has a space research centre for a fine artist, ask we matter-of-fact British? Very little; but even the most down-to-earth American institutions tend to have a little voice in the back of their minds saying "We ought to do something about Culture and the Quality of Life."

The significance of JPL is that it is the place where pictures transmitted back from space probes to Saturn and beyond are received and processed, and for this work highly advanced colour graphics computer systems have been developed, providing much higher resolution than is normally available on a video screen.

It is here that David Em tucks himself in, when he can find some free time on the computer, to produce original abstract "paintings" of extraordinary vividness and dreamlike, even nightmarish, quality.

The equipment is a PDP-11/55 with a digitising tablet and a high-resolution colour screen. The software, written by James Blinn of the Lab's technical staff, provides a choice of 256 colours and a range of "brushes" which vary the effect produced by the stylus on the tablet, from lines to fine "sprays."

Images that have been drawn into memory and thence on to the screen can be moved, copied, rotated, overlapped, and otherwise processed by a set of geometrical operations. The system is now fast enough to be interactive.

An especially novel part of the facilities is the way surface textures and types of "space" can be generated, stored away, and added to pictures in progress. A database of textures has been compiled. The whole process of making a picture can be one of trial and error, because an area filled in with one colour or texture can easily be changed to another automatically.

The finished pictures are best viewed on the video screen, which gives brilliant, almost vibrating images. Em describes himself as "fascinated by the nature of electronic light." For wider dissemination, though, he is making 30-inch by 40-inch colour photographic prints, and hopes soon to be able to make them 10 feet long. He has also produced lithographs from the pictures.

The visions in Em's paintings can only be described as fantastic: he says himself, "They are imagery that could not exist in reality." People often tell him that the pictures remind them of things they have seen in their dreams. They tend to be curious mixtures of purely abstract and vaguely natural forms. Architectural features, valleys, rudimentary landscapes seem to be visible in many of the pictures, as Em himself points out. He remarks that, curiously, "It is forms found in Nature that the computer likes to deal with on its own most of all."

This raises the intriguing question of what it is that the computer is actually doing for the artist. Says Em, "It leads me to trains of thought that would never have occurred to me without the computer." Partly, he explains, the medium does tell him what to do, and it is possible for him not to know at the beginning where he will end up with a picture. But this was true of classical painters too, he points out.

The one thing of which Em is sure is that he could never exhaust the possibilities of his new medium. "I feel I have an infinite machine here," he says. His job is to work with the machine to seek and find new visions, new relationships between colours, new spaces. "The medium is only at the Neanderthal stage," he asserts.

Em got involved in producing art from technology when he was given a job as artist-in-residence at a small Southern California plastics company. The owner was interested in art and thought his moulding machines could be used for creative ends. Thus Em started out producing room-sized plastic sculptures.

This got him into an environment totally foreign to most solitary artists – he had to learn to organise helpers to operate the machines with him, and he had to learn to deal with the management. These continue to be sizeable preoccupations at JPL.

He is dependent on technical people because he has firmly resisted the temptation to learn the engineering skills involved in his art, for fear that he could easily dissipate all his energy just getting the equipment to work.

Too many artists he knows have learnt programming and now spend all their time writing software and never producing any pictures. Em is fortunate in having world class help in computer graphics among the JPL staff.

A major outside preoccupation of Em's is theatre: writing and directing multi-media productions in the host of ambitious small theatres that nestle around the film industry.

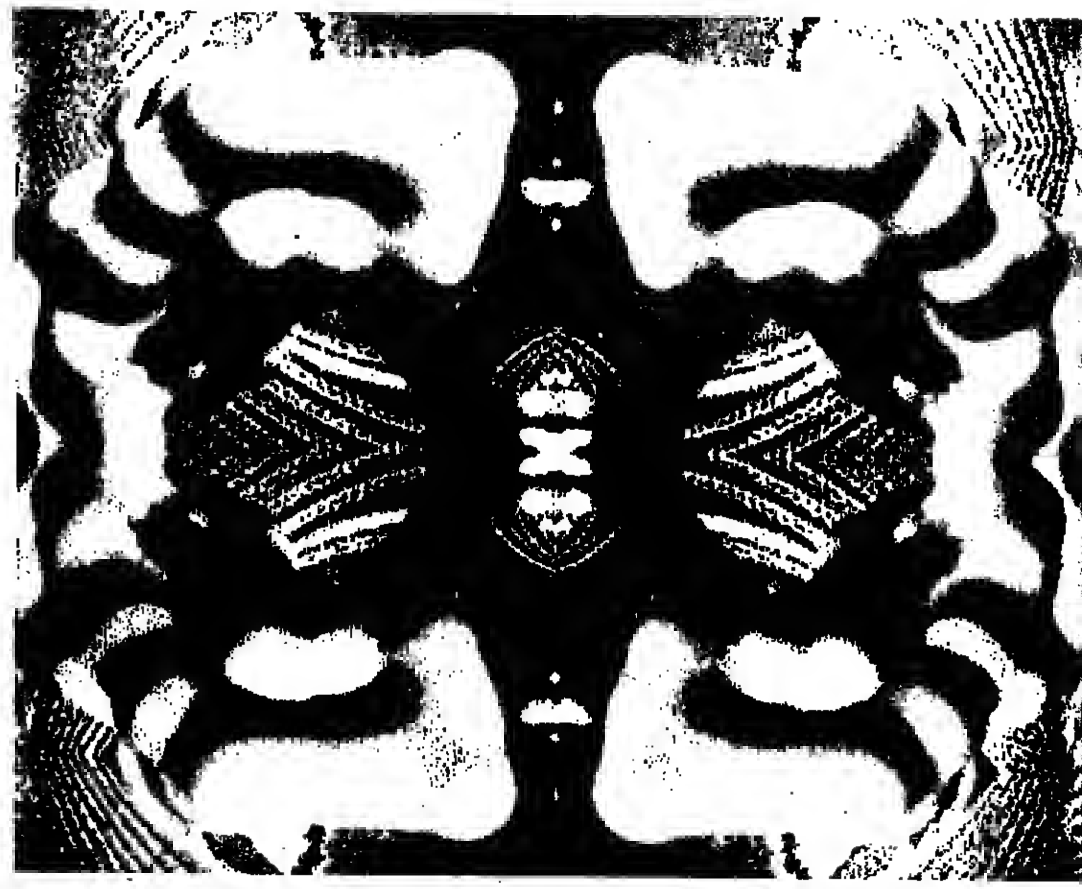
Em's pictures are used as scenery, projected from slides on to translucent screens around the set, and lasers, synthetic music, and bizarre insect-like costumes, also designed by Em, combine to produce plays like nothing that has been seen before.

Online projection of graphics using a television projector is the next logical step for Em's theatre work, opening up fascinating possibilities of modifying the visual effects in accordance with the action on the stage.

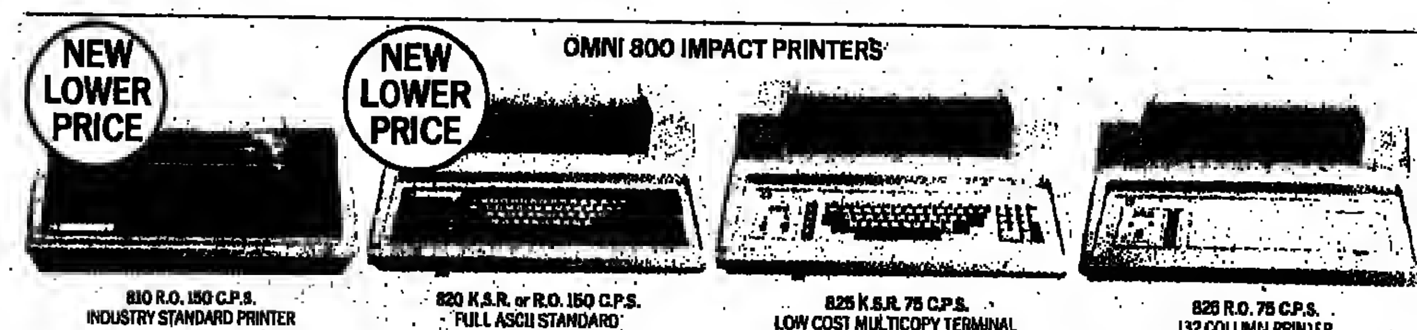
Em's ultimate goal now is to make a film. This is difficult at the moment because of the huge amount of processing that has to go into each picture, and therefore each frame of the film – the project would take a very long time.

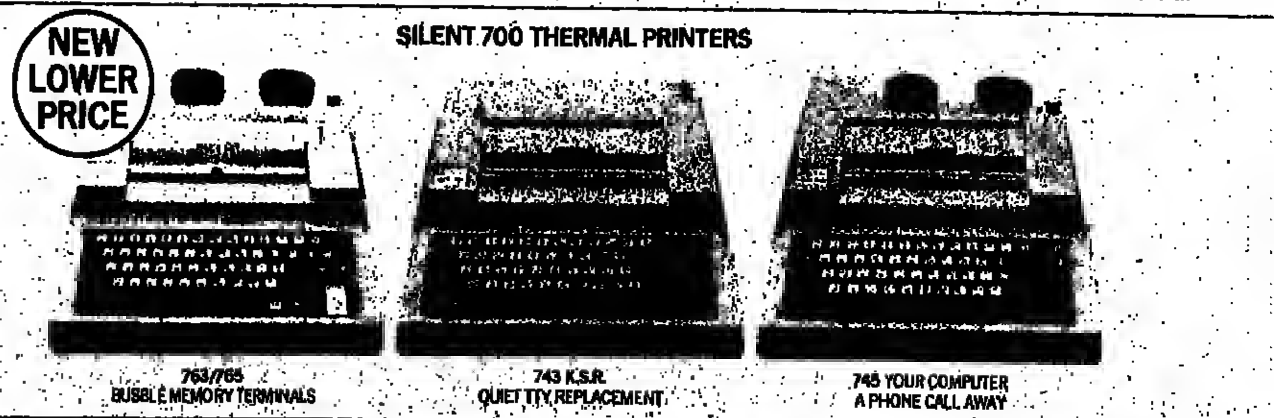
However, plenty of work is already going on in the field of digital animation, especially at the New York Institute of Technology, and the physical constraints may soon change. Em even foresees a computer producing sculpture, given appropriate digitally controlled tools.

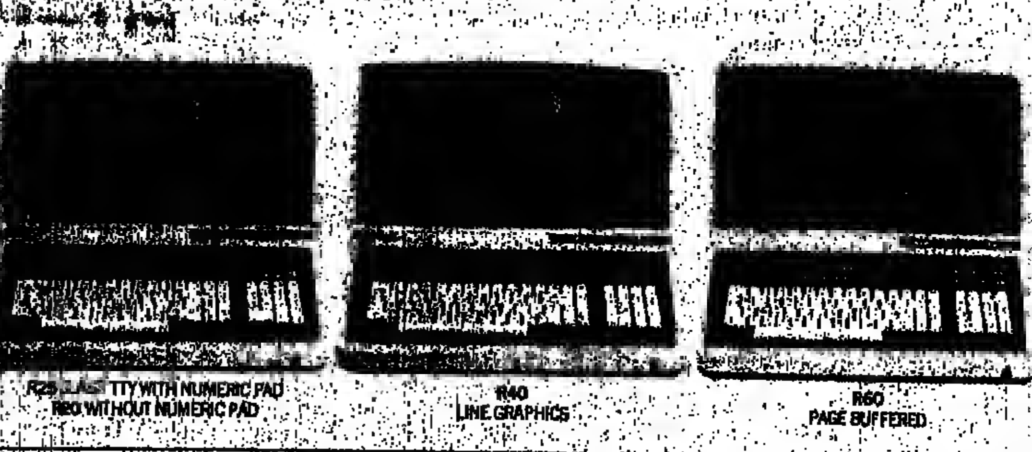
Maybe the days of the artist in the garret are numbered, now, all over the world.



David Em's picture MUMU2 was produced at the Jet Propulsion Laboratory with software by James Blinn.







Helping to lock the door against CP/M bootleggers ...

by Claire Gooding

AN aid to protect software running on the CP/M operating system has been developed by a Gloucester-based company, which is now making it available to other CP/M authors.

Atec Computer Services is a bureau based in Blakeney, which specialises in auto test equipment. Four or five years ago Atec developed a new language, called Royal, which although recognised as something of a breakthrough in its own field, won the company hardly any revenue outside the UK because of bootlegged copies circulated among US users, estimated at 200-300 strong.

Determined not to get caught out again, Atec's Roger Prout wrote a safety harness for the software which had been developed as part of the bureau's move towards a mini/micro set-up.

The product, which goes by the in-house name of Code, is a two-part tool which prevents the copying of programs under the CP/M PIP command. Effectively, it fixes the program to a physical part of the disc, and although it can be copied, the copy will be a garbled version which will not work.

Each program calls a small subroutine of code which gives access to the program through a password. A separate standalone utility creates characters on the disc which gear the file to the physical disc and make it impossible to copy without the authorised password.

"Bootlegging really is a problem for us, so to protect our software we looked into the operating system itself as a way of preventing unauthorised copying," explained Roy Coldrick of Atec. "It's by no means a panacea as anyone who knows anything about the problem of bootlegging will recognise – it's just not possible to protect totally against the copy mechanism.

"This probably won't deter the determined hobbyist, but what we're aiming to do is cut out the kind of copying which takes place among small business end-users, who wouldn't know about sector-to-sector copying which this can't prevent.

"Whist we want to protect against is the PIP file-to-file copying mechanism, where the biggest problem is. Take Microsoft's Basic – I'd like to know how many copies have actually been bought and how many copied. I know of a dozen in this area alone, and this isn't exactly a hotbed of computing.

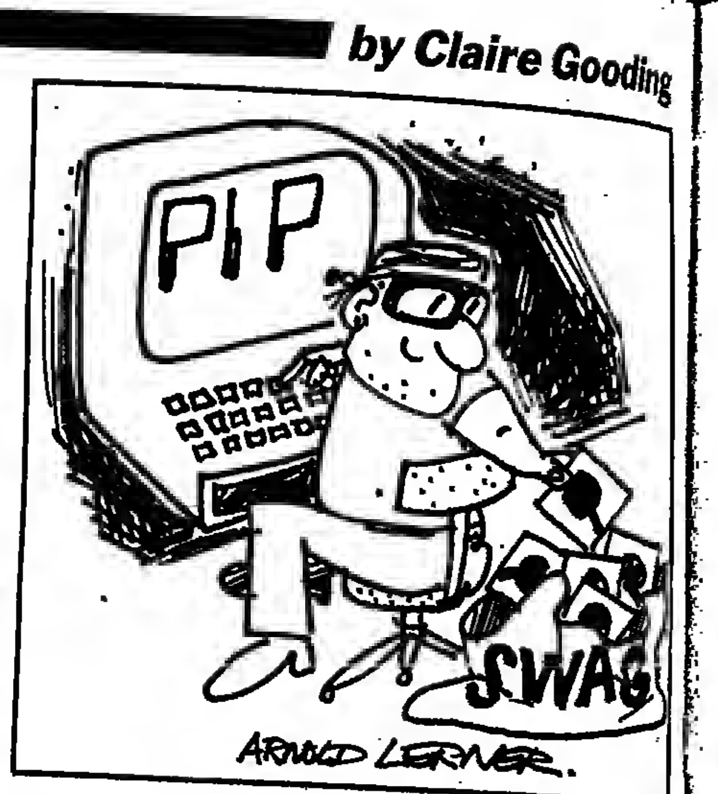
"I'm almost a bit embarrassed to go overboard about the product as we are relative novices on CP/M, although we do have a lot of experience elsewhere in electronics as well as mini- and mainframe operations. I think possibly we happened to notice a quirk of CP/M that we could use.

"One or two people have said that at £300 it's far too expensive, but my answer to that is that it could pay for itself by preventing just one or two bootlegged copies of a product. It's really a spin-off for us from our own software development, so we haven't given a great deal of thought to marketing it as yet."

The Code tool itself cannot be copied.

Many people in the micro-software business, which is the prime area where sales suffer from bootlegging, feel that physical and technical deterrents are the answer. The most stringent of laws (and Britain hasn't even a clear policy as yet) will not deter the most determined of thieves.

Given the present hiatus in establishing copyright on software, those who spend time and money developing applications for such popular systems as CP/M are wide open to piracy: perhaps such products as Atec's go some way towards locking the door.



. . . and other pirates

THE romantic image of pirates should be shattered by the gathering of software industry pundits who are to pool their wisdom on the copyright and piracy issue.

The conference on Computer Software Protection is taking place at the Waldorf Hotel, London, on March 3, and is organised by Gower Conferences. The well-known experts Peter Laurie, Alistair Kelman and Julian Allason are among the speakers.

Magnuson 'go-faster' enhancement for MVS

DOGGING IBM's footsteps, Magnuson Computer Systems has announced its own microcode "go-faster" enhancement for users of IBM's MVS operating system, promising a 17 per cent performance improvement on Magnuson hardware.

The product, called MVS Extended Facilities, uses IBM's own Systems Extension and Systems Product software. For Magnuson it means not just speedier performance but the chance to attract into its midfield market large MVS shops wanting to expand.

"The enhancement allows a low-cost Magnuson 80 system to be added to MVS installations running offload applications and systems development work," explained systems manager for Magnuson UK, John Rickard.

The Magnuson M80 is compatible with IBM 360, 370, 303X and 4300 series machines.

"What we're really doing is emulating IBM instruction sets," said technical director Howard Dowding. "If you look at most medium-sized plug compatible machines they haven't yet offered microcode to run large operating systems.

"We now have the advantage of being able to put in a Magnuson 80 to use with main storage in a shop running MVS/SE, to use the same level of OS. That means both machines use the same OS; only one lot of fixes or updates to see to."

The product was developed at Magnuson's San Jose headquarters by a small team of microcode specialists, who work to emulate IBM announcements, "usually within 60 days". It has already been benchmark tested at Exxon (Esso) in Houston.

On the smaller machines, M80/31, 32, and model 4, it can be purchased for £3,500, or rented/leased. On the larger range, M80/42, 43 and 44 it will be supplied as a standard feature.

BBC database course

FOR those who missed the BBC's highly praised introduction to the world of data processing and database techniques, the series is coming round again on the Open University syllabus.

The course is aimed at those who already have a basic understanding of computers and computing, but want to appreciate the aims and uses of databases.

"Most of it has been shot on the shop floor," explained executive producer of mathematics John Richmond. "We look at how things are physically stored in warehouses, and how a picture is built from various procedures, then how it is reflected in the data structures used by the computer."

Reviewing the series in the Times Educational Supplement last year, Professor John Florentin described it as "the stuff of real computing . . . it could be useful in many courses outside the Open University, to introduce students at levels from the sixth form upward to the world of real computing."

The programs can be recorded off-air for a copyright fee of £1 each, hired, or bought direct from the OU. They are due for transmission monthly on BBC2, roughly every fourth week on Sundays at 10.10 am and Fridays at 7.30 am.

Details are available from John Richmond at BBC Open University, Alexandra Palace, Wood Green, London N22 4AZ.

Test package

THE NCC is co-operating with the Southampton-based systems house Gresham Computer Services in producing a testing package for ICL VME-level 2900s which will enable users to remove errors in logic, syntax and data before running programs online.

The testing package is the first part of a £15,000 NCC/Gresham joint project based on Gresham's TP2900 teleprocessing monitor, and is the first project in the Software Products Scheme to concentrate on ICL-compatible products.

Unix survey

THE results of a survey conducted by the US Unix user group, USR/GROUP are now available from the Santa Cruz Operation, 500 Chestnut Street, Santa Cruz, California 95060.

The survey concentrates on the adequacy and importance of features, applications and software in Unix, with other information on current and planned uses of the system among the 63 respondents.

The report costs $75 for a full analysis, and $15 for survey results alone.

John Williamson reports on some controversial questions raised at the Mecom 81 exposition in Bahrain this month

Arab world takes a dusty view of 'so much information'

AT a time when we are assured from every public rostrum that the Information Age is just around the corner, the rarest of creatures is the man who openly casts doubt on the basis and value of what has come to be called telematics. One such surfaced in the Middle East earlier this month.

Dr Tawfeeq A. Almoayed was again the conference chairman of the Mecom 81 exposition in Bahrain. In his opening address, reviewing communication developments in the Arab world since the previous Mecom event two years ago, Dr Almoayed was gratified with the progress made towards indigenous control and maintenance of equipment, but commented: "However, we can still question many aspects of the present scene, in particular the vast growth in high speed data handling techniques which seems to have no clear objective but to find a use for all the silicon chips being churned out worldwide.

"A new jargon word, telematics, has even been coined for this combination of telecommunications and information, perhaps to insulate our minds from the reality of the situation. And what is the reality? What are we supposed to do with so much information?"

In certain parts of the world – and one naturally thinks of France – such questions are little short of heresy. Indeed, Dr Almoayed's words were greeted with some rather uneasy fidgeting in his immediate audience since outside in the Mecom 81 exhibition, French manufacturers and PTT were mounting their usual telematique extravaganza, and British Telecom was once more eulogising Prestel.


Dr Tawfeeq Almoayed, the Mecom 81 conference chairman . . . . "We can still question many aspects of the present scene."

In the context of the Middle East, Dr Almoayed may well have a point. He continued: "Much of it is obviously aimed at the widest consumer market through the medium of domestic television and the telephone network. The worst part of it all is that so much effort is given to such sophisticated data retrieval systems whilst ignoring the most basic needs of the community. Public telephone networks are, it seems, treated as a 'milch-cow', something that exists to provide funds for such grandiose schemes."

With regard to other forms of data processing and communication, Dr Almoayed was more at ease, as well he might be. After all, Bahrain's stated aspiration is to become the banking and business service centre for the Gulf area, and a priority requirement for this is the existence of a range of sophisticated voice and record communication services.

Great strides forward have already been made. Cable and Wireless, which operates Bahrain's telecommunication system, provides a database access service and a common user message switching service (both fairly novel for the area). These, and good national and international telecommunication links, have been instrumental in attracting well over 50 offshore banking operations to the island.

Other countries in the region are also looking to establish fairly sophisticated data networks. Iraq, for example, is known to have plans for a public data transmission network. Few details have been made public, but it seems likely that the first phase will be the establishment of a small network related to a particular application. This will be expanded, in more general use, to cover Baghdad and then other major centres like Basrah in the south and Mosul in the north. The Spanish PTT, Compañia Telefónica Nacional de España is one of the bodies known to have had official contact with the Iraqis.

In Saudi Arabia, too, both point-to-point and multidrop data networks are receiving serious attention. Some, like those for the Saudi Ministry of the Interior, and the Saudi American Bank, are currently being implemented.

Dr Almoayed's other main thrust in his opening address was the discrepancy between talk of transferring communications technology to the developing world and the actual implementation of this. The developed world was castigated for sitting around wondering how to share out the crumbs while keeping the main course for themselves.

The Mecom 81 exhibition provided a showcase for the products and services of some 120 companies and organisations, with the UK and US fielding over half of these. Over 3,500 visitors were recorded at the turnstiles.

As one would expect, the majority of exhibition space was given over to what might be termed first level communications equipment – terminals, switching, transmission equipment and outside plant for voice communications and elementary data systems like telex. This was also the case with Mecom 79. However, in the intervening 24 months a demand for more mature forms of data processing and communication has clearly sprung up in the Gulf area to be reflected in some of the exhibits at this year's exhibition.

The requirement for facsimile transceivers – exhibited in 1981 in actual or graphic form by Muirhead, NEC, the French PTT, Rapidcom etc. – is not surprising, bearing in mind the difficulty of committing Arabic script to conventional telex. According to a Muirhead spokesman, the Middle East currently represents the world's fourth largest market for this type of equipment.

Word processing and electronic mail systems are not so obviously requirements of the region, but business is apparently booming. DHL, a division of a company which started out using couriers to transport documents around the world, now has over over 50 installations around the Gulf. The DHL 1000 machine, which has an RS232 communications interface, is shortly to be made simpler to use and more comprehensive in capabilities with a new software package.

National Computer Services, a Bahrain-based company which distributes Vydec word processors, also reported a buoyant market. But an NCS spokeswoman pointed out that IBM is not pushing word processors in the Gulf and, unlike in some other parts of the world, has not gone in first to perform its customary educational service.

Mecom 81 was not an event at which much new equipment saw the light of day. One exception was AEG-Telefunken's data encryption equipment, Telekrypt-DAT 813, shown in Bahrain linking two Dacom facsimile transceivers modified by Kalle. DAT 813 is one of the first devices of its kind to offer full duplex working with a V24 interface. Its manufacturers claim that, with digital techniques and pseudo-random number generators, it will take 100 million mainframes working flat-out for 158 million years to cover 50% of the equipment's possible permutations.

Mecom 81 organisers, Arabian Exhibition Management, professed huge satisfaction with the way things had gone.


British Telconsult staff (the consultancy arm of British Telecom) are now working in the Middle East, helping to expand technology in the area.

[illegible]

Poland will phase out the import of Western computers

by Bohdan O. Szuprowicz

RECENT developments in the Polish data processing industry suggest that there is little chance of Poland becoming an expanding market for Western hardware. Regardless of changes in East-West trade policies, ICL, IBM and CDC will all lose their market shares in coming years.

Reporting on recent deliberations of Poland's Committee on Science and Technology of Informatics, the magazine Informatyka points out the need to limit Poland's computer hardware production and imports. This decision is dictated primarily by the necessity to slow down capital investment within the Polish economy and reduce the outflow of hard currencies. Poland owes over $20 billion to Western bankers and between 60% and 70% of Poland's export earnings are already committed to servicing that debt.

In these circumstances, imports of Western hardware have been reduced to a trickle and old computers imported from the West since 1965 are being replaced by domestic machines, or at best by imports of Riad computers from Soviet bloc countries.

At the end of 1980, there were 715 general purpose computers in Poland, not counting a much larger number of minicomputers mostly supplied by domestic production. Of this total, only 33 computers represented imports from the West while 71 were machines imported from other Soviet bloc countries, mostly the Soviet Union and Czechoslovakia. Western imports in 1980 were already down from 42 machines that existed in Poland in 1979 after some old ICL, IBM, and CDC computers had been phased out. No new sales of such machines have been made to Poland in recent years.

The 1980-1985 general purpose computer deployment plan for Poland indicates that the number of such machines is expected to increase to a peak of 744 computers in 1982. After that, the plan envisages a quick decline to only 545 medium-size general purpose machines by 1985, while minicomputer production and installations are to increase rapidly. As a result, questions are being raised as to whether Poland should even continue to manufacture medium-size general purpose computers. Some believe that the country may be better off in the long run concentrating on production of minicomputers, microprocessors, and certain peripherals with export potential.

This new plan means that by 1985, imported general purpose computers will constitute only 8.8% of all such machines in Poland, down from 14.5% in 1980. Western imports, which represented only 4.6% of the total inventory in 1980 will drop to a meagre 1.8% by 1985. Soviet bloc imports will also decline from almost 10% in 1980 to only 7% in 1985, but some Soviet minicomputer models are being produced under licence in Poland alongside the domestic Mera 400 series minicomputers.

Among major Western manufacturers likely to lose their market shares in Poland are IBM, ICL, and CDC. By 1985, only 10 Western general purpose machines are scheduled to remain in Poland if each Western computer is exploited for the typical 10-year depreciation period practised by Polish end-users. These Western remnants are expected to include an ICL 2903, two IBM 370/148s, two CDC Cyber 73-16s, a Univac 1106, a CII-HB Iris 80, and three Singer S-10 systems, all of which are already rapidly becoming obsolete. This is a far cry from 1979 when there was a total of 42 Western computers in Poland including 15 ICL, 13 IBM, and five CDC machines.

The clear winner is Po ELWRO which is expect supply about 50 new comp for domestic end-users every to replace imports being p out. During 1981-1982 the expected to consist of 20 1305 and 30 Riad R-32 comp manufactured in Poland. Du 1983-1985 Polish production is pected to switch exclusive manufacture of Riad R machines.

If these plans are realised, of all general purpose compute Poland by 1985 will be machines, of which 265 will 32s made in Poland. Anoth Riad computers will be im from Soviet bloc countries. of those are Riad R-60 comp the largest Riad machines ma the Soviet Union. Only one from East Germany is operat Poland and no further install are planned.

However, if Poland's eco situation does not improve those plans may be shelved, cause a typical Polish-made computer is a relatively expe machine costing between $1 $2 million.

The Poles are beginning realise that there are used We computers of comparable superior power available at tion of this cost but they m paid for in hard currencies in very short supply and tainly not available for that do not show the potenti generating export sales.

The Polish computer indus also aware that without tion of LSI components products, it is impossible to their prices down to make competitive in export mark their minicomputers and pherals which they hope to the West. And without hard rency earnings the Polish ind cannot make a case for Wes hardware imports for its own users.

ITT threat to shut in France

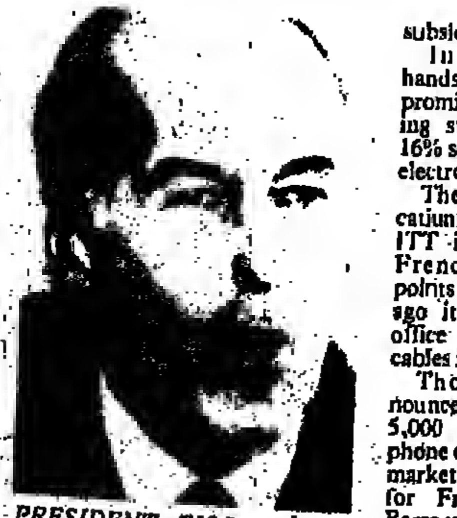
by Jack Gee

ITT has warned the French government that it will shut down operations in France unless the president, Valery Giscard D'Estaing, gives orders to stop discrimination in handing out major telephone orders.

After waiting impatiently for the French post office's telecommunications management to select its System 12 telephone exchange, it is shutting down 700 jobs in its last surviving French subsidiary, Compagnie Generale de Constructions Telephoniques.

CGCT, which has a payroll of 7,500 and four French factories, is likely to be sold if the System 12 order does not materialise within the next few months, according to ITT's European president, H. John Gulliloyle.

ITT complains that the French government has deliberately been favouring Thomson-CSF, CIT-Alcatel, SAT and Matra in placing big electronic contracts.



PRESIDENT GISCARD
"It would be a scandal."

The US firm considers this a breach of promise by Giscard, whose officials persuaded ITT in 1976 to sell two of its three French subsidiaries to Thomson-CSF.

In return ITT receive handsome cash payment and promise that CGT, the last rem ing subsidiary, would retai 16% share of post office orders electronic phone exchanges.

The post office's telecommu cations management claims ITT is trying to pressurise French authorities. But ITT points out that only a few we ago it was excluded from office orders for optical cables in Biarritz and Le Mans.

Thomson-CSF recently an nounced plans to reduce staff 5,000 before 1983 as electro phone orders shrink on the Fren market. This is embarrassing for French Premier Raym Barre who announced there would be no job cuts in the French phone industry.

President Giscard also said pub licly: "It would be a scandal people were dismissed from jobs France's telephone industry."

Soviet 'harassment' is discounted

by Kevin Cahill

FOLLOWING widespread reports that American companies operating in Moscow have been subject to harassment, IBM has denied that it has noticed anything unusual.

The reports also allege that American companies in the Russian capital have had direct dial telephones, installed for the Olympics, removed. The phones have been replaced by old operator connected machines. The Russian authorities claim that the direct dial phones were experimental.

IBM agrees that it has received a tax form from the Soviet authorities recently but claims that the form is the same as those delivered in previous years.

Other US companies continue to claim that the forms received request far more information than required previously.

The reports began to circulate a few weeks ago and according to US sources the likely objective of the exercise is to obtain an agreement which would exempt American-based Soviet companies like Aeroflot from US taxes.

This would be in return for exempting companies such as IBM from the 40% profit tax implied in the Soviet forms.

MICRO NEWS

by Eileen Stainer

Commodore's entry in the lower end of the personal computer market is marked with the introduction of the VIC 20 (video interface computer). The VIC is expected to be available at Easter for under £200. Based on the 6502 eight-bit microprocessor from MOS Technology, a Commodore subsidiary, the VIC 20 has 5K of RAM expandable to 32K, 12K of Pet Basic ROM, a single I/O port and can operate with a 20-column screen.

Shortage of test engineering staff unless work is automated

HALF the cost of a microcomputer system goes into testing and other related work, and unless it can be automated in the near future there will be a tremendous need for skilled test engineering staff.

This point was made by Dr R. G. Bennets, of Cirrus Computers, at the latest meeting of the British Computer Society, in London.

Addressing the Microprocessor Specialist Group, Dr Bennets spoke on the testing of bus-structured boards.

Producing test programs for bus structured boards and then debugging them led to all sorts of problems for the engineer. It required a high level of skill including that of a hardware or systems designer, and of a software writer.

Dr Bennets stressed that test engineers should not be thought of as failed designers. Their pay, unjustly, was often less than that of a design engineer, said Dr Bennets.

He discussed the test under three headings: test program generation, evaluating the test program, and actually diagnosing a fault on a board. These tasks were complicated by various factors.

Often, incomplete or incorrect data sheets were supplied by the manufacturer and differences existed between components from the original manufacturer and those from second sources. Sometimes, there was lack of access to all the components on a board. Other factors included the sheer volume of test data needed and the variety and rate of change of the devices.

Debugging was complicated by the fact that it was difficult to simulate the faults. Documentation indicated all valid states of a chip but not always all the invalid states.

In fault finding, problems were caused by the tester not always being in control of what was happening on the board.

Tests could not always be done at actual run time speeds and the tester might have access only to the bus and not the actual components.

Texas' 16-bit device available shortly

TEXAS Instruments' new 16-bit microprocessor, the TMS9995, will be available in the second quarter of this year at a cost of £23 for quantities of 100 or more. The chip, first announced six months ago, has an enhanced architecture but is still part of the 9900 family.

Designed and developed at TI's Bedford base, the 9995 differs from the rest of the family by its on-board RAM. It has 256 bytes of on-chip RAM which, with TI's method of using RAM as flexible working registers, greatly enhances the speed of the device.

An evaluation module based on the 9995 will be introduced at the end of next month at a cost of about £395.

The board contains a monitor for program assembly, editing and execution.

Hardware features include two EIA data communications links for interfacing with a local terminal and a host system.

Called the TMAM6095, the board provides 1K-byte of external RAM, and 6K-bytes of EPROM standard, which is expandable to 24K-bytes.

Japanese invade US market

by Hesh Wiener, Technology News of America

JAPANESE companies have done well in the US, selling consumer products like cameras, televisions, hi-fi systems and video cassette recorders. Now, companies such as Hitachi, Nippon Electric (NEC), and Sharp are introducing their microcomputers on the US market.

Sharp's handheld computer has been sold by Radio Shack (Tandy) for about six months, and several other companies, including NEC, Sony, Matsushita (Panasonic), Casio, Hitachi, Sord Computer Systems, Cannon, Logic Systems International and AI Electronics, are ready with their systems.

John McPhee, who observes the US computer scene for the Science and Electronics Division of the US Commerce Department, says: "The problems the Japanese vendors will face are the same problems the US companies already face: those of distribution, service and software."

McPhee expects the Japanese companies to deal with distribution problems by using either their established networks (if, like Panasonic, Sony and others, they now have them) or by fostering relations with business equipment and computer retail stores, particularly those with locations in more than one city.

He thinks the Japanese companies will deal with service problems by producing machines that rarely break down. The reliability of Japanese products has already been demonstrated in medium-priced hi-fi systems and cameras. But computers also need software.

"Traditionally," says Mr Phee, "the Japanese lag behind the US in software. This tradition will not last. But good custom software is a problem, even for US vendors."

To some extent, software problems could be solved by US companies. The Japanese may choose to sell their computers to OEMs who will, in turn, use their sales expertise to push the Japanese products in the US, developing or adapting software along the way. Later, the Japanese vendors can come out with newer products, sold under their own names. For example, Sharp is building on the foundation laid down by Radio Shack. Some time this year, it will announce new systems of its own, to be sold by its own dealers.

"There must be a lot of US firms just itching to get into the home and business microcomputer markets," McPhee says. "And they would be happy to sell Japanese micros."

Another approach might be for the companies to develop easy-to-use systems that would attract more first-time users than do conventional approaches. "As new technologies creep in, you see a decline in memory prices," says McPhee. "Then you can squeeze more sophisticated software in, making the machines easier to use."

Some industry participants fear that once the Japanese companies make their presence felt in the US microcomputer market, there may be a reaction in the form of US protectionism. Tom Nugent, Panasonic US sales manager for its portable data system division, says, "As the market grows, there will be a build-up, followed by a shake-out. Finally, you can expect the emergence of a few companies that will control the market."

He is quick to add, "But any problems are a long way off."

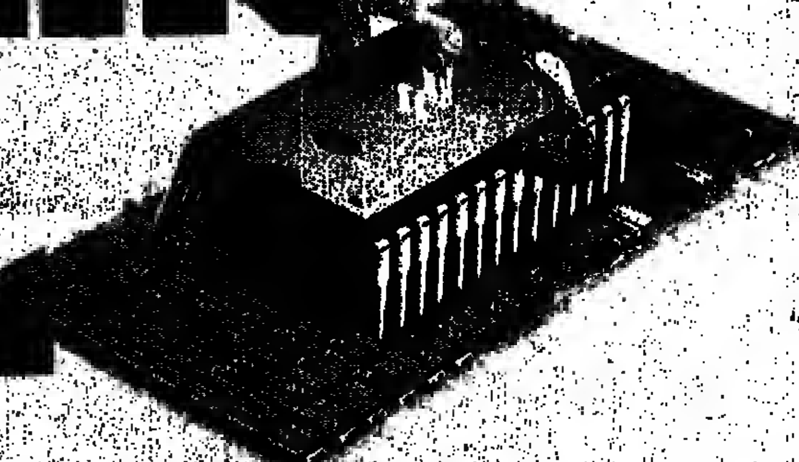
Speech synthesis chip

A 32-WORD speech synthesis chip is now available from ITT Semiconductors. The N channel silicon gate MOS device which is mask programmable for different languages and vocabularies, marks the company's renewed efforts in the speech synthesis market.

Designated the UAA1103, the chip is suitable for control by microprocessor as its addressing is carried out using 5-bit binary code. Storage and processing of the speech elements is digital, including methods of data reduction and removing redundancy.

ITT's competitors in the speech synthesis field include National Semiconductor, which is also using the data reduction and digitising methods, Texas Instruments and General Instruments.

The latter two companies both use a linear predictive coding method whereby a mathematical model is made of the vocal tract. GI also uses a phoneme method which involves separating the speech into basic sounds, called phonemes.



Cloud hangs over the Wall Street computer stocks

THE go-go computer stocks of last year's American bull market in high technology shares are now beginning to "come off," as the brokers put it. The reasons are not hard to find, as Americans begin to take stock of their new President, and the inflation-ridden recession-hit economy he inherited.

Chairmen reporting on the current quarter's trading, often in the same speech in which they reveal last year's record turnover and profit increases (with some notable exceptions such as Burroughs and Memorex) have reported difficult trading conditions.

There were hopes late last year that the American economy was beginning to move out of recession, and President Reagan has taken the first of his promised steps to cut federal spending.

But very few economists believe that the turn has taken place. All the signs are that the cure which Reagan intends to apply will, as a very similar cure has done here in the UK, turn a recession into a full-blown slump.

Stockbroking firm Hesaltine Moss, in its February newsletter, says: "High interest rates lead to high sterling (foreign demand), lead to industrial slump (due to recession at home and exporting uncompetitiveness), lead to high unemployment, lead to high public sector borrowing requirements (social security costs and low tax revenue), lead to high interest rates due to the need to sell gilts (government debt)."

The US is in the same vicious spiral, with both inflation and interest rates at far higher levels than in the UK. Currently American bank rate is 19% and inflation is at about the same level. Reagan administration sees Federal spending as the prime culprit, and the massive $50 billion cuts the President wants will inevitably lead to a slowdown in orders to companies from federal procurement agencies.

In another part of its news letter Hesaltine Moss points out the need for the UK government to distinguish between revenue and capital expenditure and to continue with capital expenditure.

If that advice had been taken earlier, ICL might have retained the replacement policy for the ageing government 1900 machines, and possibly would have avoided some if not all of its current troubles.

In the US, the new pessimism is the only possible explanation for the sudden fall in the shares of Prime Computers, which last week reported a record 84% rise in profit.

According to reports from New York, a number of big holders of Prime stock sold on the basis of a single phrase in the Prime president's report referring to "some order softness," in the current quarter.

Apparently that phrase, along with the general pessimism, was enough to set the shares back 20%, from just over $34 to $28 at one point.

However, that fall must be seen in the light of Prime's share price rise last year, which took the stock from $14 to $34 in a few months. Anyone who bought early last year will still be showing 100% profit.

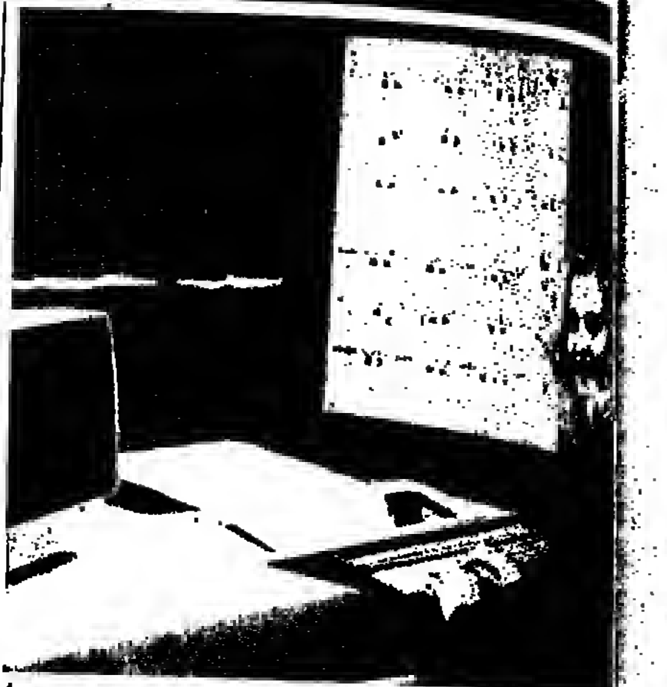
Apple fell back last week from a high of $37 to just over the original offer price of $28. This fall may have nothing to do with the events affecting Prime and other shares – it could simply be that some form of rationality is entering the investors' minds as they begin to meditate on the likelihood of a share ever being worth over 200 times the last known earnings of the parent company.

There is also the fact that a number of commentators are beginning to wonder whether Apple can sustain the remarkable growth it has shown so far. The Apple microcomputer, on the back of which the company has founded its fortune, is less technologically advanced than properly priced and packaged for its market.

The Apple's basic components were around before Apple assembled them, and they have been getting cheaper ever since.

And even that ubiquitous giant IBM has recently reported on the effective slash in its share value, while shyly borrowing billions on the side. Apple, like IBM, may begin to need expensive capital if it is to maintain the breakneck pace of its own development.

The share table on the facing page gives a good guide to the general US drift into gloom.



An operator demonstrates the Gordon and Gotch real time stockbroking system at the company's City offices.

Major coup for City payroll system

GORDON and Gotch Computers, the data processing subsidiary of London trading group Gordon and Gotch, has announced a major coup for its batch payroll system. Merrill Lynch, one of the biggest finance houses in the US, and said to be the largest computer user there, after the US government, has signed to run the UK payroll with Gordon and Gotch.

This addition brings to 40,000 the number of payroll slips being handled by Gordon and Gotch each week and month.

The results for last year, in the Gordon and Gotch holding company accounts, show that the computer companies in the group had turnover of £2,319,000 and a profit of £310,000. This is a 13.3% return on turnover, and makes the computer bureau the most profitable subsidiary in the group, which had total turnover of £30.9 million and a profit of £1.2 million.

The Gordon and Gotch bureau business has been expanding recently, and the new computer centre at Staines in Middlesex is contributing to what the company hopes will be a record year.

The parent company poured money into the computer side last year, with a £1 million investment in dual Burroughs B4700 sited in the City offices.

The dual running 4700s is aimed at giving guaranteed back up to the specialised online stockbroking service run by Gordon and Gotch. This service, which now handles 15% of all the share bargain transactions carried out by brokers on the London Stock Exchange, accounts for [illegible] of the bureau's turnover. One of only four such packages available, the service is offered by Gordon and Gotch either on an in-house system, or via the bureau service.

The majority of Gordon and Gotch's customers use the bureau service from Burroughs B4700 equipment sited in the brokers' offices.

Mannesmann buys half of Kienzle

KIENZLE Apparat, the West German DP to taxi meter company, is to receive a cash injection of £8 million from Mannesmann, the engineering group. In return, the Kienzle family, who currently own Kienzle, will part with 50% of their equity for an undisclosed sum, understood to be £10 million.

The deal values Kienzle at £20 million, against turnover of £160 million and a workforce of over 8,500.

Mr Evans, joint managing director of the Kienzle UK company, said he was delighted with the deal, which would enable the company to go farther and faster in developing new products.

He hoped that the family atmosphere which had always been a feature of the company would remain, he said; Kienzle would not lose its identity under the deal and would continue to trade under its existing name.

Kienzle's UK company was set up in 1968 and now has a turnover of £10 million and employs 420.

The company specialises in supplying computerised accounting systems based on the K1900 machine to first time users.

The company has recently expanded upmarket with the 9066 mini.

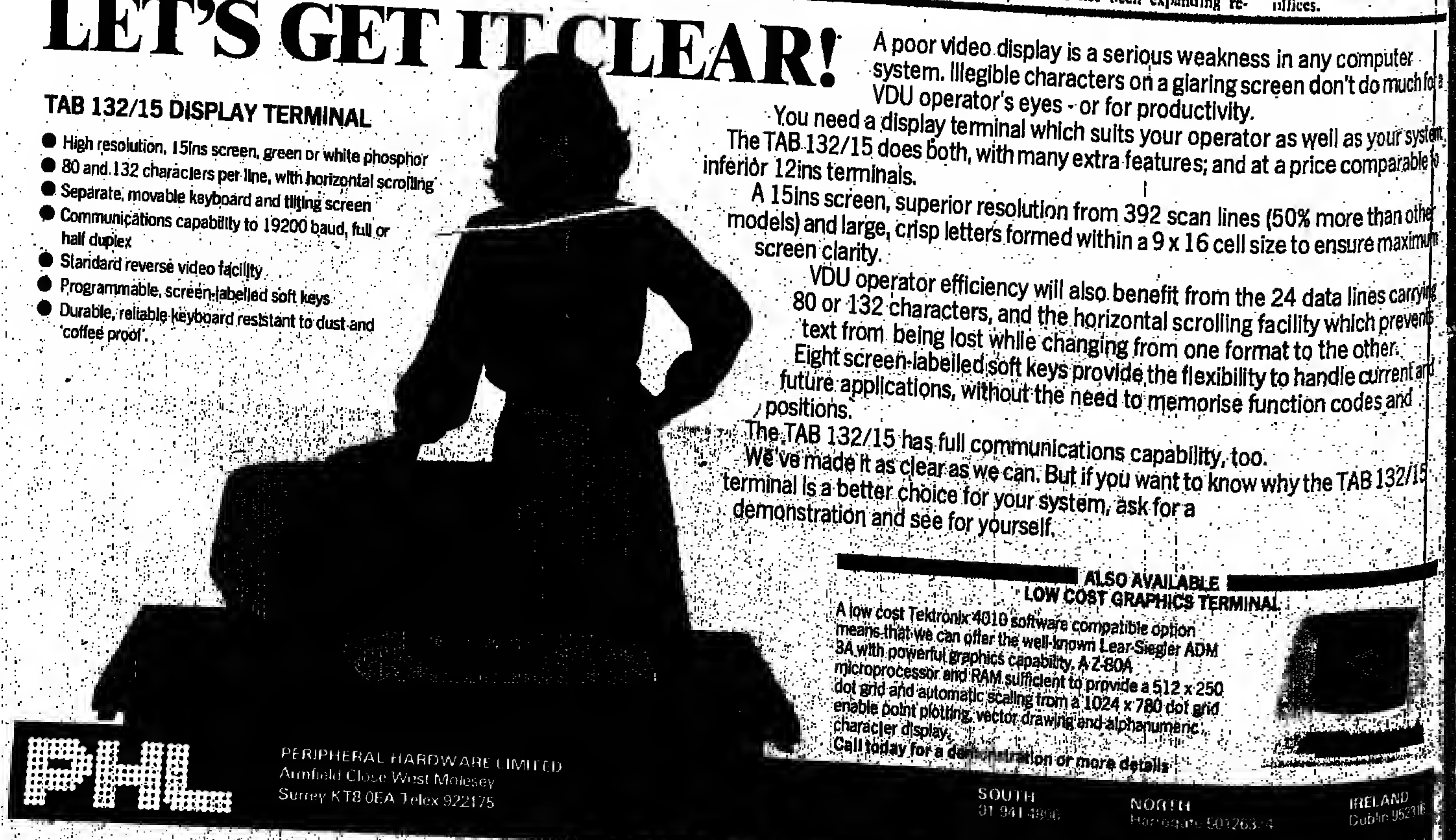
Mannesmann, the engineering giant which has bought into Kienzle, had turnover last year of £3 billion, and profits of £100 million. One of the reasons quoted for the "partnership deal" is Mannesmann's anxiety to buy into growth oriented and profitable areas.

Mannesmann's profitability, measured against turnover was a mere 2.5%. The company, like all capital project oriented business, has been under additional pressure since the recession began to affect Germany.

Capital for UK firms

ANOTHER venture capital source has emerged in the UK, this time in rural Cambridge. Venture Founders is a company set up by Brian Haslett, a graduate of Trinity College, Cambridge.

Haslett has just returned from a 10-year stint in America where he learnt how venture capital was used, and now has £2 million on offer to high technology entrepreneurs.



Computas sees a big future in teleinformatics

COMPUTAS, the Norwegian software house, which has offices in London, reports turnover up 23% to £6 million for the financial year just ended. Profit before depreciation was £600,000.

The company, which claims to be the biggest software operation in Norway, now has a staff of more than 200, and has additional international offices in Paris, Hamburg and Rotterdam.

Last year Computas started a subsidiary company in Sweden which the Computas managing director, Per Boman, reckons will be doing £1 million worth of business by the year end.

Boman says he expects to employ over 40 people in Sweden, to cope with this expansion.

Computas has developed a particularly strong position in the supply of software for technical applications in the engineering industry. The company produces packages to assist engineers in evaluating stress and to test the strength of load bearing structures and machinery.

Looking to the future, Boman said he believed that the most interesting developments over the next few years would be in teleinformatics, which he defined as "the bringing together of ideas and techniques from the field of telecommunications, data technology and text handling."

Boman announced that the company would be involved in at least one such project with an international oil company during 1981.

Because of the dispersion of people and towns in Scandinavia, that area was recently identified in the IDC Europa report as one of the fastest growth areas for telecommunications.

But Boman said Computas would be looking to the company's international activities in areas such as India, the Middle East and Korea as a prime source of new business. He implied that Computas would be giving serious consideration to opening a base in Singapore in 1981.

Leasing profits are up

COMDISC Incorporated, the leasing company specialising in IBM kit, reports increased turnover for the first quarter of the fiscal year 1980/81. Revenues rose to £35.8 million, against £25.8 million in the same quarter of 1978/80.

Profit for the quarter was £1.49 million, against £950,000 the previous year.

The chairman of the company noted that IBM's announcement of the 3081 and reduced prices for the 303X series had ended uncertainty in the marketplace.

The chairman said that Comdisc's business increased during the second half of the quarter and the company expected this increase to be maintained, particularly when IBM announces delivery dates for the 3081.

Buoyant first half at Racal

RACAL continues to report excellent results and to absorb the Decca acquisition without suffering in either profit or growth terms.

The first-half figures for the 1980/81 financial year show turnover for the half-year up by over 20% to £240.6 million, compared with £199.2 million for the same period in 1979.

Profit rose 13% to £26.5 million compared to £23.3 million in the same period of 1979.

CW SHARES TABLE

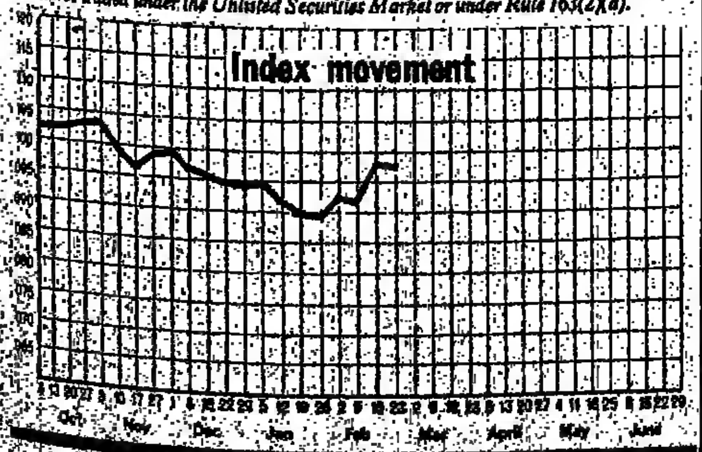
Date: 20/2/81

Index: 96.42 Change: −0.28

1981 High (Pence)	1981 Low (Pence)	London Stock Exchange Stock	Price (Pence)	C'nge (Pence)
135	115	A Comp Tech (25p)	135	+ 2
129	102	BOC Int (25p)	114	− 6
22	20½	B Bay Xers (25p)	20½	−
92	89	Chubb (30p)	89	− 3
83	45	Cole (R.H.) (25p)	53	+ 1
756	675	De La Rue (25p)	685	−10
187	172	Extel (25p)	172	− 4
605	423	Ferranti (50p)	505	+10
651	568	GEC (25p)	646	− 8
57	38	ICL (25p)	40	− 1
78	63	Kalamazoo (10p)	65	+ 2
277	250	Kode Int (25p)	270	− 6
110	88	Muirhead (25p)	103	− 7
338	320	Office & Elect (25p)	326	+ 3
367	283	Philips Lamp (Fl 10)	357	+27
306	285	Plessey (50p)	304	− 1
367	285	Racal Elect (25p)	367	+17
123	110	Rediffusion (25p)	123	+ 8
319	280	Thorn-EMI (25p)	302	+ 4
		OTHER MARKETS*		
865	770	NMW (£1)	805	+10
185	165	Quest Auto (10p)	184	+ 4
50	46	Rolfe & Nolan (10p)	46	−11
229	210	ScanData (10p)	220	−
$		US Stocks	$	
31¾	28¼	Amdahl	28¾	−2½
32½	27⅞	Apple Inc	27⅞	−
48¾	47¼	Auto Data Prg	48¾	+ 1⅛
53	48	Burroughs	48¼	+ ¼
2⅞	2⅛	Commodore	2⅞	+ ½
16⅞	15⅞	Comp Automation	15⅞	− ½

1981 High ($)	1981 Low ($)	US Stocks Stock	Price ($)	C'nge ($)
21⅝	16¼	Comp Sciences	16¾	+ ½
18	11½	Comshare	17½	−
65⅞	60¼	Control Data	60¼	− 1⅛
28¾	31⅛	Cray Research	31⅛	− 3⅜
60	45¾	Data General	47½	+ ¾
56⅞	47⅞	Datapoint	47⅞	− 1⅛
36¼	31⅝	Dataproducts	33¾	− 2½
88½	81¼	Digital Equipment	82⅞	− 1⅛
38¼	35	Elec Data Sys	36	− ⅛
9½	8⅞	Gen Automation	9	+ ⅛
60⅞	44⅛	Harris	44⅞	− 1⅛
85¼	81⅛	Hewlett-Packard	85¾	−
103½	98½	Honeywell	99½	− 1½
39¾	36	Intel	38¼	+ 1¼
67½	61¼	IBM	61¼	− ⅝
80	66⅝	Litton Ind	66⅝	− 6¼
21⅝	16⅞	MDS (Mohawk Data)	16⅞	− ⅛
16⅛	13¾	Mngmnt Assist	14⅞	+ ⅜
12⅝	10½	Memorex	11¼	− ⅝
21⅞	15⅝	Modular Comp	17⅞	− 1
68¼	62¾	Motorola	62¾	− 4⅛
35¼	31⅞	National Semi	31⅞	− 1
73	57⅝	NCR	57⅝	−
31	28⅝	Perkin-Elmer	29¾	+ 1⅛
35⅝	26⅝	Prime	26⅝	− 8
102	94	Raytheon	94	− 7⅜
36⅛	29⅝	Signal	28	+ ⅝
62⅛	61⅜	Sperry Corp	61⅜	− 1½
20⅜	18⅛	Storage Tech	18¾	− 1⅛
44⅞	40⅞	Tandy	40⅞	− 2⅛
117½	112½	Texas Instruments	112½	− 3⅛
45⅝	41¼	Tymshare	42⅛	− 3⅜
37	33½	Wang Lab B	33½	− 2⅜
14⅛	12	Wyly	12	− ⅝

The table shows the closing prices in London on Friday and in America on Thursday. The share index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.
**Shares traded under the Unlisted Securities Market or under Rule 163(2)(a).*



[illegible]

by Kevin Cahill

Share forecasts put Honeywell ahead

COMPANY	RECENT SHARE PRICE	'79 EARNINGS PER SHARE	5YEAR TREND	IBES CONSENSUS	CHANGE IN STOCK PRICE DEC. 31. 1979 - 1980
Amdahl	$28¾	1.02	1.05	1.68	–
Auto Data Pro	$47½	2.21	3.24	3.03	+41.4%
Burroughs	$50¾	7.45	7.92	7.05	−31.3%
Comp Sciences	$20⅛	1.70	2.64	2.28	+2.0%
Control Data	$65½	8.68	10.81	8.28	+30.0%
Data General	$50⅞	4.82	7.73	6.17	+20.0%
Data Point	$101	2.83	5.57	4.81	+128.3%
Digital Equipment	$87⅛	4.10	7.48	8.24	+37.9%
Elec Data Systems	$38	1.82	2.30	2.55	+22.0%
Harris	$48¾	2.38	3.56	3.02	+58.6%
Hewlett-Packard	$84⅛	3.43	5.37	5.00	+51.4%
Honeywell	$101	10.85	15.34	11.78	+34.2%
Intel	$38	1.80	3.23	2.57	–
IBM	$65	5.18	6.57	8.59	+5.4%
Litton Ind	$74	4.88	11.81	7.67	–
Memorex	$10½	3.91	NA	1.50	−28.7%
Motorola	$67⅛	4.98	8.05	6.18	–
NCR	$61½	8.78	13.83	10.04	+8.3%
NatSemi	$33¾	2.59	4.22	4.16	–
Raytheon	$94½	8.30	8.31	7.93	+84.2%
Sperry	$56⅝	6.90	8.73	8.38	+25.5%
Storage Tech	$19⅝	1.58	3.01	2.10	+30.2%
Tandy	$43⅝	3.23	6.99	5.47	+218%
Texas Instruments	$112¾	7.58	12.01	6.69	+37.2%
Wang Lab B	$36⅝	0.59	1.58	1.43	–

Five-year trend earning per share estimate based on log linear least squares growth rate. Consensus estimate from Institutional Brokers Estimate System.

EACH year the American business magazine Business Week produces a forecast of earnings per share for all the major US companies. Computer Weekly has taken an abstract of this year's forecasts where they relate to computer companies and we publish that list, with share price appreciation and depreciation as it occurred last year.

Points of interest are that on an earnings per share basis Honeywell comes out best in both the five-year trend and under the conservative revising of that figure by the compilers of the table.

IBM, on a five-year basis, looks set to improve earnings per share by about 20% – very unglamorous given IBM's image and track record. The IBM prospects come up much the same under the consensus view.

Only NCR is seen, with Honeywell, getting its earnings per share into double digits.

Control Data is forecast to share third place, with a potential rise of nearly 50%.

Only Memorex is seen as producing an earnings decline over the five-year period, though Burroughs, with its recent problems, must be a candidate for a downward revision.

Compared to other sectors of American industry the computer companies show a consistently higher five-year trend, even when the consensus view is taken into account.

There is no similar list in the UK and only six companies listed on any of the stock exchange markets could be classed as predominantly computer companies.

The data in the table on the left was compiled by Standards & Poors Compustats Services Inc from such sources as statistical services, newspapers, registration statements and company reports that SPCS believes to be reliable but are not guaranteed by either SPCS or Business Week as to correctness or completeness. The material is not an offer or a solicitation to buy or sell any security.

Sharp growth

TURNOVER at I. P. Sharp Associates, the international APL time sharing service, was up 40% last year to £16.3 million. The 600 staff of the company will share in a record £272,000 handout, nearly three times better than last year's profit shareout of just over £100,000.

The company is planning to open new offices in Singapore, Hong Kong and Bahrain.

GILB'S MYTHODOLOGY

Look for self-adjusting opportunities when designing systems

VERY few self-adjusting system designs seem to be used in practice or reported in the literature. Yet they have proved useful on occasion; they simplify our system by taking over the burden of changing it to new operational conditions.

One of the most common and useful examples of self-adjusting software is found in the many operating systems which adjust program priorities and primary memory space usage according to current conditions. In inventory control systems the use of current data on orders, combined with historical data, serves as a basis for adjusting the minimum order quantity to a more interesting number than some constant number.

In the early days of disc drives ("RAMAC" for the old timers) a useful self-adjusting concept was to record the activity count in each record, and later, during file reorganisation, make use of that number to ensure that the currently most active records were placed in the best positions for fast accessing. I still use this concept, an activity counter in control fields of each record, almost as a standard design specification, because in addition to its optimising ability it can be used for double checking recovery routines (did all updates get repeated?) and has potential as a security check (unusual activity might indicate intentional fraud or errors).

In one database system we discovered by accident that when the file had been added to heavily without a file reorganisation, it was much faster to access the records via a detailed index (which always required two seek operations, but never more) than via an indexed sequential search which started with an index in primary memory, and thus theoretically needed only one seek search and then perhaps sequential reads on the same cylinder.

This led to the discovery that we could sample and time each method in the morning start-up routines and then simply choose the access method which was operating fastest that day.

How many of you have thought of the concept of a self-adjusting database access method set? It might be more effective than a single method, no matter how effective that method is.

What we simplified in this case was the operational need to worry about file reorganisation so often in order to maintain reasonable performance. I am surprised that concepts like the two above-mentioned file optimisation ideas are nowhere to be found in database and file organisation literature (I'd be happy to be corrected!).

A steel company wanted better reasonableness checking in an on-line order entry system. They wanted to avoid repeating the ordered quantity twice, and were not satisfied just checking that the quantity was not utterly ridiculous.

The idea of giving reasonable limits on major groups of products was discarded as not providing tight enough controls. The idea of giving each individual product a maximum reasonable order quantity indicator in its record, was at first discarded as being too difficult to determine, and too difficult to keep updated in a reasonable way. Then we considered the possibility of creating and updating the "maximum reasonable quantity for this product" field by simply putting the highest quantity actually ordered in the field and requiring confirmation from the operator for any higher quantities. This simple design idea was accepted.

It is not difficult to imagine increased sophistication by keeping track of minimum quantities, and keeping track of common patterns (such as ordering whole numbers, dozens, fives, odd numbers or groups of, say, 46 because of packaging) and reacting when unusual deviations occur. I have never seen this pattern recognition alternative, but course participants have claimed to have implemented variations of it successfully. It's an idea worth collecting.

If you think about it we are really talking about programming the kind of reasonableness checking that human clerks perform more or less unconsciously. They react to unusual patterns or quantities, based on what they have experienced as normal.

In another application of this principle, an Austrian savings bank posed the problem that they wanted to use the birthdate of personal account holders as a security and reliability check before approving cheque amounts by telephone. The problem was how to collect a million birthdates for their database before beginning the system. I suggested to the DP manager who posed the problem to me on a course, that they start up without the birthdate. It would be keyed in, but if it was not already present (due to a previous inquiry) it was simply noted in the database for future reference! If desired another security check such as address or telephone number could be used temporarily. The DP manager was overjoyed to find such a simple way of getting this scheme on the air.

I have used it in many variations (example, customer name and address collected as the first order comes in, and not by a special file update to register the customer before any order can be processed).

Tom Gilb is an independent consultant, lecturer and author on computing topics.

In more general terms, it seems as though we have picked up some now obsolete habits in our old systems, and carried them through to current systems. We don't need to have separate processes for registering things like accounts and products before we can refer to them "via their number". We can capture data about them as we process current transactions on them. This tends to improve response of the systems. It gets the systems on the air earlier, too.

So, consider letting current transaction data help you to keep up-to-date in your databases and tables. Look for self-adjusting opportunities when you design systems — they are present in most systems if you are tuned in to them.

Tom Gilb

14 YEARS AGO

From Computer Weekly of February 23, 1967 (this column temporarily replaces our Ten Years Ago feature, due to the postal strike in February and March, 1971, which resulted in the suspension of Computer Weekly distribution):

WORK on designing a traffic control digital communications network (DCN) based on a British computer analogous to the Honeywell DPP 516 has been under way for the last year. This was announced by National Physical Laboratory Autonomics Division director D. Davies at an Institute of Electrical Engineers' conference dealing with message switching technology . . . Elliott-Automation will take over GEC Computer and Automation Ltd, the GEC subsidiary which holds a five-year UK manufacture and sales licence for the SDS range of computers. Sigma computers are being sought currently by both the Medical Research Council and the Chilton Atlas Laboratory . . . Elliott-Automation is also involved in tendering for a computer system to service automatic air traffic control data for Eurocontrol, the Brussels based organisation that monitors the higher regions of airspace above Western Europe. E-A joins Ateliers de Constructions Electrique de Charleroi (Belgium), Standard Elektrik Lorenz (Federal Republic of Germany) and Compagnie Générale de Constructions Télégraphiques (France) in the four-member consortium bidding for the contract.

LEGAL OPINION

Stamp your name on it!

Bryan Niblett is a barrister and computer scientist specialising in the legal problems associated with computers.

IT IS slowly becoming recognised that copyright law is an effective and simple means of protecting ownership of computer programs. A decision of the US courts in a case involving Data Cash Systems, first reported in late 1979, appeared to put copyright protection in some jeopardy — at least in the US and for programs embodied in read only memory. In fact an appeal showed the fears were premature, but the case still has an important lesson for those in the UK who license software overseas.

The action was between Data Cash and the JS&A Group, first heard in a Federal District Court in Chicago. Data Cash had employed a consultant to develop a program which was able to play chess at six different levels of difficulty. The program took the usual form: instructions were coded in a high-level language to produce source code, and this was compiled into an assembly code used to create an object program in ROM. The ROM was installed in a game marketed under the name Compuchess. In the US (the rules are different here) a program must be registered and deposited with the Copyright Office, if it is to have copyright protection, and this was done.

A copyright notice also appeared on the source program and its copies. Compuchess sales began in 1977 and reached 5,500 by the end of the year.

At that time Data Cash discovered that identical ROM was being manufactured by a company in Hong Kong and was to be imported by JS&A as its own Computer Chess. After unsuccessful attempts to prevent marketing of the rival which was admitted to be a direct copy of the Compuchess ROM, Data Cash began the action for copyright infringement and unfair competition. JS&A responded by asking the Chicago court for summary judgment against Data Cash on the basis that it had a complete answer to the action.

The judge in the Chicago District Court held, surprisingly, that the ROM marketed by JS&A was not a "copy" within the meaning of US copyright law. It asserted that a copy must be in a form which others can see and read. This was a remarkable judgment, since neither party had argued this particular issue and indeed neither attempted to defend the judgment on appeal.

In the US Court of Appeals there was no discussion of copyright infringement, the argument turning exclusively on whether the program, in the form of the ROM, had inadvertently entered the public domain permitting duplication by JS&A. The plaintiff argued that though a copyright notice was imprinted on the source program there was no such notice on the ROM, or the chess board, the packaging or the accompanying instructions.

Copyright protection in the US (though not in the UK) requires notification of a claim of copyright by the inclusion of a copyright notice on all publicly distributed copies from which the work can be visually perceived — either directly or with the aid of a machine. Failure to [illegible] copyright notice in the [illegible] that all who read the program could not avoid seeing it [illegible] to the Data Cash claim, and the decision of the District Court was affirmed. Nevertheless it is still possible that the plaintiff may win his action for unfair competition which has yet to be tried.

The lesson for those in the UK who market programs overseas is not that copyright protection is ineffective, but that care should be taken to include a copyright notice on all copies of the program.

Bryan Niblett

DOWNTIME

How to spot the (binary) time

IF when you look at my picture all you see is spots before your eyes, you are right. This is the latest gadget for the systems analyst who has everything, imported from the States by Tamsys of Windsor. It is the ultimate in ergonomic technology, namely a binary read-out clock.

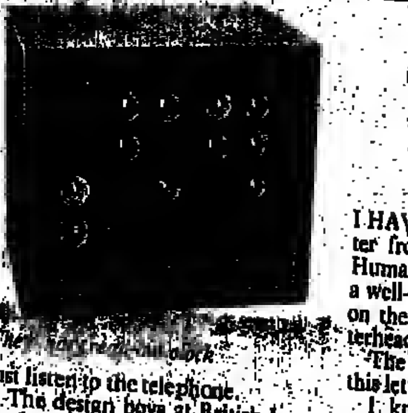
The digits run horizontally, one for hours, two for minutes, and two for seconds, and the bits run vertically with the LSB at the top. Thus the clock in the picture says 12:35 and 37 seconds. Note that there is none of this new-fangled nonsense about 24 hour time, and to keep you on your toes the minutes and seconds are in BCD while the hours are in straight binary. Clever stuff!

Thus you can be driven mad by flashing lights and keep your brain's powers of information processing exercised at the same time. You get all this for a paltry £52 — in genuine plastic imitation wood, that is. If you want plastic imitation plastic it will set you back £72.

Readers may be puzzled by the price, considering that one can buy digital clocks with decimal readouts for around £10, but I think I have worked this out. You see, the clock chips available all have decimal seven-segment outputs, and lots of circuitry is needed to convert these back into binary again (to be converted back into decimal by the brain). No expense has been spared!

I certainly hope this is a trend that will continue. Even now I understand an enterprising firm in Stoke-on-Trent is developing a computer terminal, costing only £9,999.95, that emits ASCII characters as a series of pulsed tones from a loudspeaker for the user to interpret using his own built-in carbon-chip circuitry. The advantage of this is that nothing has to be done to the terminal to switch from ASCII to EBCDIC. The user simply learns a new code.

The only thing that is worrying the manufacturers is that someone may twig that you don't need to buy the terminal at all; you can just listen to the telephone.



The [illegible] clock

The design boys at British Leyland are never slow to catch on to these things, and I hear rumours that they are working on a car with holes in the floor that enable you to push it along with your feet.

Deja vu?

THERE are so many technical conferences on that no one can possibly get to them all, and of course one is always left with a lingering worry one has missed something new and exciting.

But how often is the worry justified? I was asking one of the Info 81 speakers about who else was on the platform and he said: "Oh, it was SOFA. You know, the Same Old Faces Association."

Read into it just what you wish!

I HAVE received a fascinating letter from the Aspen Institute for Humanistic Studies in New York, a well-known think tank, and it is on their impressive embossed letterhead paper.

The only strange thing about this letter is that it is totally blank.

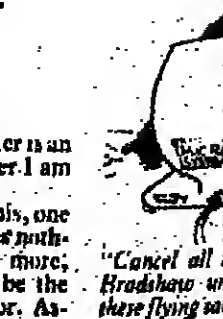
I know the portentous issues these bodies deal with require tight security in communications, to prevent earth-shaking ideas getting into irresponsible hands, but I do think the Aspen people might have told me how to read their invisible ink. I have tried all the tricks I can remember from Boys' Own Paper: rubbing it with lemon, holding it over a candle, sprinkling it with moss from the north side of a tree, all to no avail. Presumably the reading instructions are themselves in invisible ink, and no one at Aspen has read of recursion yet.

It's like those messages you used to get from the KGB saying "Destroy this before reading further." Of course, it is presumptuous of me to assume there is an oversight on their part; they may be wanting to offer me a job and the letter is an ingenuity test to see whether I am up to it.

Thinking further about this, one remembers that in the States nothing is done manually any more, and my blank letter must be the product of a word processor. Aspen must have an automatic letter writing system, and it is understandable that, being humanists, they should have a little trouble with their technology.

Does the computer sense what it is the author wishes to say and write the letter for him, saving him the drudgery of actually assembling sentences and pushing the keys? If so, is my blank letter an embarrassingly frank revelation of how much one of the thinkers has to say to me?

On the other hand, maybe this is a new Stateside fad in interpersonal relationships. For too long, I hear them cry, communications have been totally originator-driven. Now, instead of forcing you to read what we have written, we send you a blank letter for you to read into it whatever you wish. An ongoing creativity situation.



"Cancel all my appointments [illegible] Bradshaw until I [illegible] these flying saucers"

This is an idea the [illegible] have picked up from [illegible] to their gurus in India, where, I understand, it is considered polite to tell people what they want to hear, rather than what you know is the truth. Thus if you ask [illegible] the last bus gone yet? [illegible] want it not to have gone, [illegible] they will tell you it hasn't, [illegible] to please you.

The other possibility about the Aspen letter is that it is part of a deliberate campaign to combat the information explosion. Think how much less burdened you would feel if every piece of paper you received was blank. The first thing I want to see arriving in my post is blank bills.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, February 26, 1981

An industry that expects more

REMEMBER the days when you could while away your time on the Tube finding out if you'd make a computer programmer? The industry was then so desperate for staff that, according to the adverts, if you could follow the sequence 5, 7, 9, 11 with the number 13, you were made.

Flick through the adverts at the back of CW these days and you get a very different picture. It's no longer a matter of just knowing a language or an operating system, or even a machine. Often experience of a particular applications area is requested: "banking and insurance . . . realistic commercial outlook . . . a total of four years' experience in DP is expected." The key word is experience.

Graduate recruitment has been drastically cut by many firms, and some programmers — the latest casualties being from that doyen of the software scene, CAP — are even finding themselves redundant. The recession has meant that people are sitting tight with the jobs they already have.

However, the much-discussed "people problem" has not disappeared. There are areas — research and development was one pointed out on this page last week — where the right people are in great demand and short supply.

Systems programmers, designers, software engineers, and people with a foot in both software and hardware camps are still able to command the kind of respect, not to mention salary, that programmers used to get simply for being in the right trade at the right time.

This is not due just to the rarity of such skills, though it does suggest that it is not just Cobol-coders that TOPS should be training. It's a reflection of the fact that the computer industry itself expects more from its people as well as its machines these days.

Everyone else is trying to make the most of existing resources efficiently, as witnessed by the boom in such application areas as financial modelling and materials planning. Users are allocating computer resources more carefully, not just turning to the package solution, and making more use of productivity aids where in-house development is inevitable.

That means more effort put into activities which give the end user more power; operating systems, development aids and other such tools. The result is bound to be (as has long been foreseen, if somewhat overstated) less need for the common-or-garden programmer.

It's not such a bad thing if no applications programmer ever has to write a date routine again. The end user is increasingly aware that quality matters — and so it should.

Man of vision

FOR those who feel the days of the great British engineer/entrepreneurs are over, last week brought welcome news. Clive Sinclair, pioneer of the pocket calculator and most recently the £100 computer, popped up to prove that, given the determination and intellect, and just a little help from your friends (in this case the NRDC and the Scottish Economic Planning Department) all things are possible, even in the worst of economic recessions.

It was just a short time ago that Sinclair expressed an ambition to produce a miniature flat-screen TV, and true to form here it was, looking deceptively simple (see page 6).

Better than the prospect of pocket television itself, however, was the prospect of 1,000 new jobs, and the demonstration that for the right project, the machinery still exists, within government to provide a good measure of financial backing. The blood runs cold when Sinclair reveals that facilities and finance in Hong Kong made it a strong contender as a manufacturing site.

As a lesson for all manufacturing industry, one is reminded of one of Sir Keith Joseph's oft-quoted aphorisms, that success in manufacturing industry is simply a question of producing a product that the customer wants, at a price he can afford.

Sinclair seems to have taken this to its logical conclusion by predicting what the customer *will* want at a price below his expectations.

1984 and all that . . .

THIS week's example of the strange things people say in the media about computers was sent in by M. D. Walker of London N16, who wins £5.

Well, we can leave the teleprinter now, or more accurately the videprinter.

— David Coleman on Grandstand, BBC1 following the display of football results on a VDU.

LETTERS

An invention that could 'make programming redundant'

IT was interesting to read about the article by Adrian Berry in the Daily Telegraph (1984 and All That, February 19) regarding the "device" that can be fed into any computer and make programming redundant.

The device, known as "The Last One" (because in theory, it is the last program that any human would have to write) is the invention of David James and Scotty Bambury in Ilminster, Somerset.

If the device is in fact a piece of hardware totally compatible with all computers and does all that it is said it can do, then indeed this is truly a breakthrough. However if this device is a collection of programs that allows the user to ask for various types of programs to be written automatically, then I see no reason for the astounded response from the computing community.

I am sure most competent programmers using a high level language (and I do *not* regard Fortran or Cobol to be ones) would be able to write a program which would, using an interactive technique, structure an information or calculation based program quite quickly.

Two years ago Normalair Garrett Ltd had reached a point in the development of a particular production system where over 1,000 individual routines had to be written. The language in use was (and always will be, I hope) APL, a very neat, precise, notation language.

Being a very logical and flexible language it took all of 45 minutes to write a program, which reduced the time required to write one of these routines from half a day to about 10 minutes. It did this by actually writing the routine for you. All that was required by the program user was for him or her to input the required question text, as these routines were interactive, plus any calculation lines required. The rest of the routines structure, naming of variables, labels and answer vetting, were all handled by this program.

I must now add that Normalair Garrett Ltd does not now use this technique for generating functions. The reason is clear.

If you have to resort to writing a program to write programs then you are (1) using too low level language, (2) structuring your subroutines at the wrong level.

We could not be accused of using a low level language. APL does in fact allow you to write your own language/shorthand to suit your needs. However, further thought and investigation resulted in a very powerful set of sub-routines (slave routines) that allowed interactive programs to be written very quickly, yet gave the programmer sufficient control over the internal structure of the programs he was writing. This in the end proved to be the best compromise.

E. P. GOROCHOWSKI
Analyst
Normalair Garrett Limited
Yeovil

How to get experience for a job

I SUGGEST that the many people with computing qualifications but no experience consider taking a part-time degree of Master of Philosophy with the computing department of the local university. This involves a minimum of two years' research starting at any time of year and in order to succeed you should be able to make a modest contribution to knowledge.

The normal qualifications required will be a degree in a science subject or equivalent but an HND in an appropriate subject could well be considered equivalent. The fees vary widely from £250 per year upwards.

If you choose your project wisely to involve the computer language and field of computing which you wish to use in full-time employment you should be able to use the university's computer for four or five evenings a week and thus gain some worthwhile experience. You will also have the assistance of your supervisor.

The advantage of this course is that provided you do not spend more than 25 hours a week on the project and are able to take up full-time employment at any time if this is offered you can still draw unemployment benefit for the first year of unemployment, though social security if necessary in the second year could cause a problem.

If you can do without unemployment benefit a full-time course will take one year minimum and the fees will be higher.

D. FAWTHROP
Full-time M.Phil student
at Bradford University

Ideas of an imaginative teacher

MR LEIGH asks (CW, February 12) is it fair to introduce a new set of symbols and call them conventional.

I didn't introduce them. They are used throughout Ken Bowles' book, Problem Solving Using Pascal (Springer Verlag, 1977), and there are earlier versions of the book. As the originator of UCSD Pascal and an original and imaginative teacher his ideas merit serious attention.

If they did not exist, they would need to be invented because once it is understood that flowcharts are not appropriate for structured programming, something else must be sought. There are two other attempts to give a graphical view of well-structured programs: iteration graphs and design structure diagrams.

I do not know how much Ken Bowles' structure diagrams are used in America, but Danish teachers use them as the natural aid to programming in Comal. I believe that structure diagrams meet Mr Leigh's criteria of practicability inside and outside education.

ROY ATHERTON
Head of Computer Education Centre

Bulmershe College of Higher Education,
Reading.

The biggest in Norway

COMPUTER WEEKLY takes a little time to reach us here in Norway, but we read with interest a short report concerning CAP Gemini Sogeti taking over the Norwegian Data Logic (CW, Jan 22, 1981). Data Logic is described as "According to CGS Data Logic is the largest Norwegian company in the field of professional computing services, excluding service bureaux".

Our company, S. A. Computas, is "the largest Norwegian company in the field of professional computing services, excluding service bureaux."

We have had an excellent year in 1980 with turnover in excess of $14 million (Data Logic had $2 million) and staff up to more than 200 (Data Logic has 56). Now that we have established our new subsidiary in Sweden we reckon on being amongst the largest in Scandinavia too.

We are also building ourselves up very strongly in the international market place and intend to become a force to be reckoned with.

Today you will find our departments or projects in London, Paris, Amsterdam, Hamburg, Portugal, Iraq, South Korea, Thailand and New Delhi.

DAG HAVERAAEN
Vice-president
A.S. Computas, Norway.

Info exchange

I SUSPECT that an information exchange group does not exist for small to medium businesses who may be considering the future of electronic office systems beyond word processing. May I invite contact from anyone knowing of, or interested in forming, such a group.

G. WISE
Information Services
Office Systems Controller
Mazda Car Imports,
Longfield Road,
North Farm Industrial Estate,
Tunbridge Wells.

Liveware File by Don

OP SPOT

by Paul Fisher

'Ops should be chosen for their logical thinking and abstract reasoning'

PROTOCOL Operations' inaugural event at the Coburg Hotel, Bayswater, London was a greater success than its organisers had anticipated. More than 60 managerial heavyweights ("I only know half of them here," said director Chris Schaefer) heard four speakers talk of the company's wares.

Graham Lund, operations manager for Royal London Mutual Insurance, chaired the proceedings and said that the purpose of the forum was to look at various methods of training.

The first speaker, Phil Wilson, who is ops manager for the Reader's Digest, gave his thoughts on tailoring courses for particular installations.

An advocate of increased responsibility for the operations department, he encourages the view that operators should be chosen for "their logical thinking and abstract reasoning power". He feels that the future will bring technical hurdles for ops as they become involved with more sophisticated software, distributed processing and telecomms. (He will be featured on this page soon dangling from a hang-glider.)

Wilson was followed by John Davies, Whitbread operations manager. He talked about external education and training courses.

The next speaker, consultant Henry Trull, spoke of systems and operations interface. A Protocol orthodoxy will be the notion that much systems work and virtually all networking is the proper preserve of operations.

Managing director Malcolm Fry wrapped things up and said that Protocol was keeping its options open at this stage. He promised a three-pronged attack on the market with operations training, consultancy work, and seminars and forums.

Another promise is for a steering committee of users with the power to influence what happens.

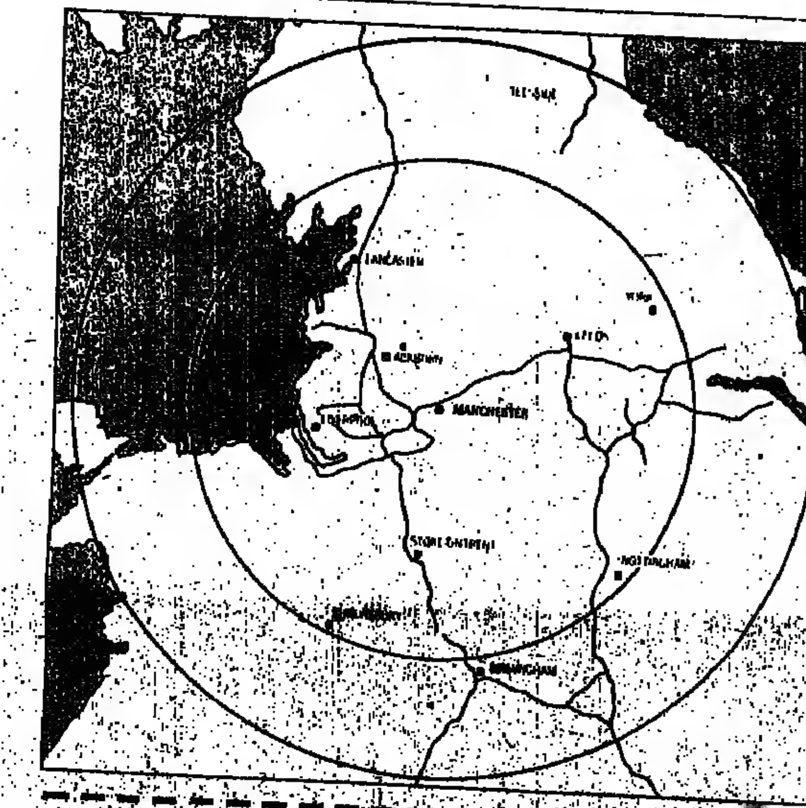
"It should be," says director Paul Brunton, "like a CUA with teeth."

The emphasis throughout the event was on training at all levels from the new entrant to the top dog.

Fry also listed the different times when training might become a priority. Included in that list were manufacturer or OS conversion, software enhancements and organisational restructure.

"If we owned Rolls Royces," said Phil Wilson, "we wouldn't ask a chauffeur to drive it unless we were sure he could drive."

Malcolm Fry, managing director of Protocol Operations, making his pitch to some of his potential customers.



Now for something completely different

IN the beginning, about 1977 in fact, marketing people discovered one of those "massive potential growth areas" they like to talk about. They called it the home computer market and small computer systems were given homely names like Pet and Apple. They became the most successful members of a small systems fraternity, and fortunes were made as they became tools in education, engineering and business.

Hard on the heels of these undomesticated roles comes a program which, if successful, could bring a huge domestic market into life.

Computer Weekly's US Deep Throat has revealed a grubby little marketing idea from a merchant in Houston, Texas.

Syolonic Software has introduced what it coyly calls a passion program. This is a tenner's worth of suggestions on sex, a digital Kama Sutra no less.

David Brown, president of the company, has tried most of the suggestions and so can honestly report: "It's all normal sex for married couples . . . we insist on no groups, no homosexuality, nothing that involves pain."

A painless and neutral suggestion that springs to mind is two, a couple of computers making suggestions to each other. A wedding could be arranged if propriety so demanded.

At any rate the session will provide layman and expert alike with an exquisite experience, an entirely fresh combination of the redont and voyeurism.

My informant didn't know whether the system is interactive or not; he didn't even find out what system the package runs on.

Perhaps the inventive chaps and chappesses in marketing were anticipating the future more than anyone knew when they came up with those [illegible] names of Pet and Apple.

Move to MVS seen as obvious choice

OF the 450 or so UK sites still using OS/VS1, about 10% are expected to be represented at a two-day briefing called OS/VS1 to MVS. It is organised by Maidenhead-based Xephon Technology Transfer, and there will be three speakers who have experience of the conversion.

The contention is that IBM intends to squeeze out OS/VS1 as its mid-range operating system. DOS users are being encouraged to stay with DOS/VSE rather than move to OS/VS1. Software and hardware products no longer support it.

Xephon's view is that, for the majority of OS/VS1 users, the move to MVS is the most obvious choice. IBM and its eager sales people also favour the MVS choice.

There are strong arguments in favour of MVS.

The smallest practical machine on which to run MVS is something on the lines of a 4-megabyte 370/158 so, to an extent, MVS equates with substantial hardware sales. IBM likes to believe that the processing requirements of its larger users will grow at an annual rate of between 25% and 45%.

It is a belief backed up by surveys and seems reasonable enough. Assuming a 25% growth rate, the user installing a 3033S this morning will have outgrown a 3033 MP by 1985. It's all grist to the mill of an MVS advocate.

Xephon anticipates that "many rapid growth plans for large users will undoubtedly be reflected in the future evolution of MVS. It will get bigger, grow new bells and whistles and develop an even greater appetite for resources."

The MVS event, or consultancy briefing as it is grandly called, will consider both the problems associated with conversion and, then, how best to exploit the new operating system.

As far as the conversion goes, Xephon estimates that planning costs should not fall below 10% of total conversion costs. The overall cost includes training courses, hardware upgrades, software products and overtime.

The advantages of MVS will be highlighted, but alternatives will also be considered. Benefits include lower unit costs for system production, new functions and the increased productivity of terminal-based systems for program implementation.

Xephon does not reckon that the choices for an OS/VS1 user, other than MVS, are particularly attractive.

PROGRAMMERS PAGE

by Pamela Rowe

Charting a course through the rocky terrain of tests

IN those halcyon days before recession, when people still thought of changing their jobs, it was common enough to be invited for "interview and aptitude testing on such and such a date at such and such a time."

In due course, you trudged along and sat down with other hushed applicants at a desk before a battery of tests.

Which tests you got was largely a matter of luck, as there is quite a variety going the rounds. Some are of the familiar IQ type (see Figure 1) — a mixture of numerical sequences, spatial figures, and verbal distortions, all to be sorted out.

Others are pure logic testers, a complicated flow that you follow tortuously through decision boxes and event paths, hanging on to your on-going calculation through diamond, square and go-to-exit.

A third type can be more tricky with limits on the rules such as add or divide only (or multiply *and* divide) and numbers in boxes, manipulated to achieve a certain result in a given *few* moves (see Figure 2).

Then the road leads from the academically pure to applied commercial problems where you can be lost forever among the impenetrable jargon of business.

All these are meant to test for the same thing — an aptitude for programming. How does it occur that an individual can score top marks on one test and fail another?

Are aptitude tests a valid predictor of future programming ability or merely a way of cutting down the number of applicants?

I sounded out two large and very different organisations about their testing procedures — one a major aviation authority, and the other a leading insurance company, The Royal London Mutual.

The aviation authority tests all applicants. There are two fairly dissimilar types of test and chance determines which one is given — the three-part, hour-long test divided into verbal, numerical, and abstract sections (like the IQ variety), or a two-hour session on three logical problems.

Both tests apply equally to operators and programmers alike and successful candidates graduate to the next stage of interview. To reach thus far the candidate must achieve a mark of 60 out of 85, around 75%.

The test is marked as a whole and while borderline cases are usually included for interview, fails and poor results are only carried forward exceptionally.

As the man from the aviation authority said: "Out of 30 applications, we would invite on average 12 for testing, of which eight would probably pass and be interviewed. Three of these might be offered a job."

On the whole, the authority finds the test — whichever version is employed — acts as a good predictor of future programming, though not analytical, ability, particularly the abstract sections.

The Royal London Mutual Insurance Company gives the older IBM test developed about 15 years ago in preference to the similar but newer eight-year-old one which it claims is too easy.

Conversely, says P. J. Harding, manager of Computer Technical Services, the company applies the test only to new entrants or juniors with less than three months' experience.

"We'd expect anyone with more experience to have already sorted out the basics," he said, "and we would rely on the interview."

The IBM test is also tripartite comprising incomplete number progressions (10 mins); picture series, where the next in the sequence is chosen from a range (15 mins); and arithmetical reasoning problems (30 mins).

On this test, one mark is given for each correct answer and ¼ deducted for every wrong one. "It is possible to score zero by guessing," Harding said, "and we've even had a couple of minus scores — bad guessers."

Marks above zero are graded into three categories, A for 60 or more out of 86 (similar to the 75% of the aviation authority); B for those with 50-60; and C with below 50 marks.

Category A is naturally preferred but B is also interviewed. Below 50, the application is not entertained — there are enough who score above.

"The last couple of times we've advertised a trainee vacancy, we've had 80-100 applicants for the one job. Of these about 5%-10% will pass as category A, and another, say, 10% plus as category B.

"We usually narrow it down to the best three or four of these, then, if there is nothing to choose between them, it is simply the one with the best test results."

And what about practical results — did the tests correlate with actual performance?

"Yes, we're pretty happy with the forecasting. The failure rate is low, usually none in the A and only ever a couple in the B category. We have found in practice that people who score over 70 go on to become chief programmers or analysts.

"On the other hand, there must be times when we throw the baby out with the bath-water by rejecting good material who happen to score low marks."

Most other companies I asked gave aptitude tests only to trainees. The general consensus is that they are a useful indicator of programming potential.

No one could explain readily how one test could be passed and another failed by the same person, but a guess was hazarded that the answer lay with the individual. He or she had an "on" day or an "off" day respectively, or was a borderline case anyway.

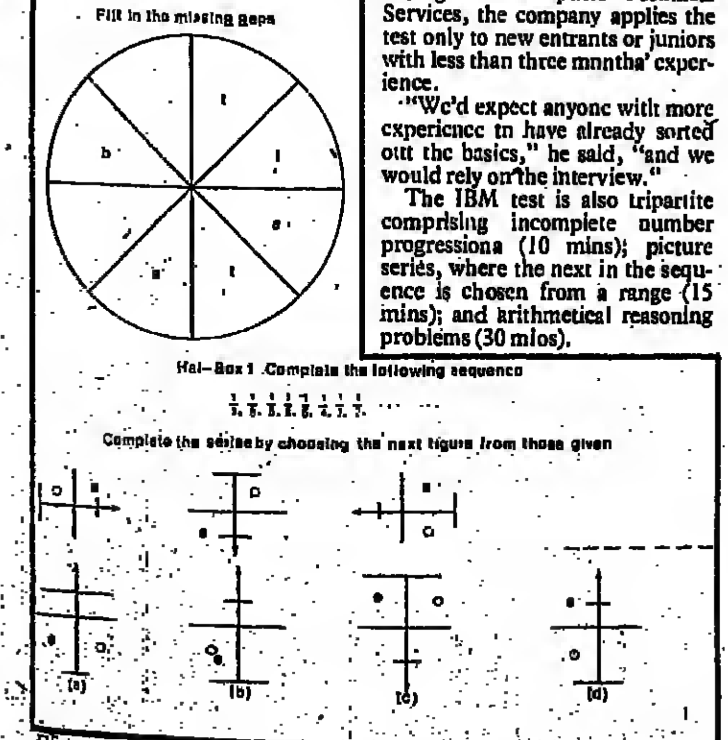


Figure 1.

Hal Box 2 By adding place 12 in box 1 and 15 in box 3 in three operations.

Notes: Boxes retain the original number unless overwritten, e.g.

2 + 1 → 2
3 + 2 → 1
1 + 1 → 1

leaves numbers as

3	8	7
12	5	7
6	8	7

Box No:	1	2	3
Initially:	3	8	7

Figure 2.

PUZZLER

A SOFTWARE sales manager drafts a different letter to each of his regional reps, and asks his secretary to type the relevant envelopes and arrange for posting. The secretary prepares the envelopes correctly, but leaves the job of actually inserting the letters to a scatter-brained office junior, late in the afternoon.

This junior, in a hurry to get away, grabs the letters and shoves one into each envelope at random before rushing out to the postbox. What is the probability that not a single letter will arrive at its proper destination?

See page 47 for solution. (Strangely enough, the actual number of reps is of little or no significance here!)

Software Sciences' last graduate intake.

Software Sci is still smiling

WAS it really only five months ago that Software Sciences sent me this happy smiling picture of 12 new graduate recruits? Now comes news of six redundancies among DP staff in the company's print trade division.

Is this the too familiar comment on the state of things in our industry?

No, says BOC-owned Software Sciences, it is not part of a major streamlining, merely a reflection of changes in the publishing market.

BOC, in fact, is reported to be expanding its DP division by the acquisition of suitable companies, and Software Sciences has put in a bid to buy SPL, on the market now for 18 months.

Could be cause for more smiles yet.

DATA ANALYSIS

Function networks are a neater basis for design

Section I – Part 19 of our series describing a system design methodology

by Rosemary Rock-Evans

DURING functional analysis, one of the main tasks to be completed was that of functional decomposition which was the progressive breaking down of the main functions of the business into sub-functions.

The result was a series of function hierarchies which showed in increasing detail the tasks done to achieve the enterprise's objectives.

Two examples were used to illustrate function hierarchies. A simple everyday example "Household Management" was decomposed down to the "Make Tea" function to show what tasks needed to be completed to "Make Tea".

Then a very simple function from the hospital example was shown and used in later articles on data flow diagrams, access path analysis etc.

There was one point stressed in the functional decomposition, – functions can occur quite legitimately in more than one hierarchy.

This point is important to this stage of analysis, because it results in the drawing of function networks. A function network is the result of combining the function hierarchies where common functions occur.

What is the purpose of function networks?

● Common functions indicate that common programs or modules can be used to support higher level functions. A function need not be implemented directly as a program, module or subroutine.

For example, two functions may be supported by one transaction program because of the way the database has been designed.

On the other hand, a function may be split, because it is considered that the resultant program would exceed the core size permitted for an installation or exceed the execution time permitted.

However, functions are always supported by transactions which are the basis of the programs, modules or subroutines.

It is obvious that by finding the common functions, modules can be written which can be used in the execution of many transactions and immense development effort is saved in programming, testing, debugging etc.

● If functional analysis is being used for organisation studies, common functions can indicate that common practices are required or that the task might be best allocated to one job rather than split over several jobs.

● The action of drawing function networks can result in the analyst finding that although two functions seem different they are in fact the same, because the user defining one function forgot to tell the analyst about all the tasks involved.

In Figure 1, for instance, there appears to be a common function "Cancel Operation". Let us assume, however, that on looking at the function definition we find that "Cancel Operation" for "Handle Patient Deaths" involves the two tasks: change status of operation to cancelled, and produce details of operation cancelled.

On the other hand within the scheduling function, "Cancel Operation" involves the tasks: change the status of operation to cancelled, change the doctor's operating schedule, produce details of the operation cancelled, disseminate details of the cancelled operation to all nurses and doctors involved, and reschedule the operations.

This looks auspicious, as the two functions appear as though they should be performing the same tasks.

The result is that the analyst goes back to check with the user who discussed the "Handle patient deaths" function.

Very often, functions which look as though they ought to be the same, are the same, and checking with the user results in changes to the definition of functions.

Function networks become another method of verifying that the results of analysis are correct.

1.- Using the function hierarchies and (very important) the descriptions of the functions, determine which functions have:

a) Exactly the same input in terms of entity types, attribute types and relationship types.

b) Exactly the same output as above.

c) The same tasks or actions.

If two or more functions satisfy the above criteria they can be regarded as identical.

2. Mark on the function hierarchies the functions which are identical.

This can be done by using a different coloured pen to that used for drawing the hierarchies, and either numbering the boxes or circling them and joining them together, whichever is more suitable.

Figure 1 demonstrates a hospital example. A – Cancel Operation and B – Cancel Appointment have been identified as common functions in two hierarchies.

The point made about finding functions which appear to be different but are in fact the same, should also be borne in mind.

In our example, it has been assumed that where the functions have the same name, they are in fact the same.

3. Find out where functions are so similar that they can be combined by using the values of attribute types or knowledge of the type of event.

4. Combine the hierarchies together to produce a network of functions. In Figure 2, examples are provided to show how two hierarchies can be combined into a network.

In example 1, A consists of tasks C, D and E, B consists of only tasks D and E.

In example 2, A consists of tasks C, D and E and B consists of tasks C, D and E.

In example 3, A consists of task C and possibly D, B consists of tasks D, E and F.

In example 4, A, B and C all include tasks D and E but with A there is an optional task F and with B, an optional task G.

In example 5, the result of combining hierarchies with more than two levels is shown.

In some cases, it is impossible to draw a function network because of the number of functions and the complexity involved.

Where this applies it is best just to leave the functions numbered on the hierarchy to indicate commonality and use the data dictionary to provide the information the network would have provided.

5. Figure 3 shows the results of combining the functions identified as being common, in the hospital example from Figure 1.

Once the function network is complete, it should be possible to draw a complete data flow diagram of each level of network. This is because all data flows should now be complete and should have been cross-checked.

A data flow diagram is always drawn for the elementary function level using the results of entity life cycle analysis.

What may have occurred to readers of the article on entity life cycles is that they are inverted data flow diagrams. The inputs and outputs to functions are the entities in certain states.

Thus, we should now be able to invert the entity life cycles so that the states become input and output data flows and the functions are represented by boxes and not lines.

We have returned to our simple household management example to show the result.

In Figure 4, the life cycles of the teapot and kettle have been inverted and combined.

The resulting data flow diagram actually impacts on many other life cycles – the water, tea leaves, tea things and socket entity types. The result of combining all these life cycles should be a complete data flow diagram for the area under study. Combining entity life cycles in this way has considerable impact on the analysis phase.

(i) It immediately pinpoints errors in the function hierarchy.

(ii) A complete functional picture is now available as a data flow diagram, where the impact and effect of every event can be seen.

(iii) The boundaries of the area of study can now be shown on the diagram. In the Figure 4 example, if the robot was used the boundaries would be as shown. Input and output of the computerised robot system is shown in heavy black.

The result should be a complete picture of all data flows in the area under study, together with the "sources" and "sinks". These are functions outside the area of study where data originates and where data goes.

These are not defined precisely, they are there merely to help the analyst see where the boundaries of the area of study are.

It was stated when we dealt with data flow diagrams that they provide the basis of system and program design. It may be clearer on studying Figure 3 why this is the case.

Function networks are more compact and neater than function hierarchies simply because all duplication has been removed and they provide a basis for program design and a method of verifying the results of functional analysis.

The Data Analysis methodology was developed at CACI by Ian Palmer.

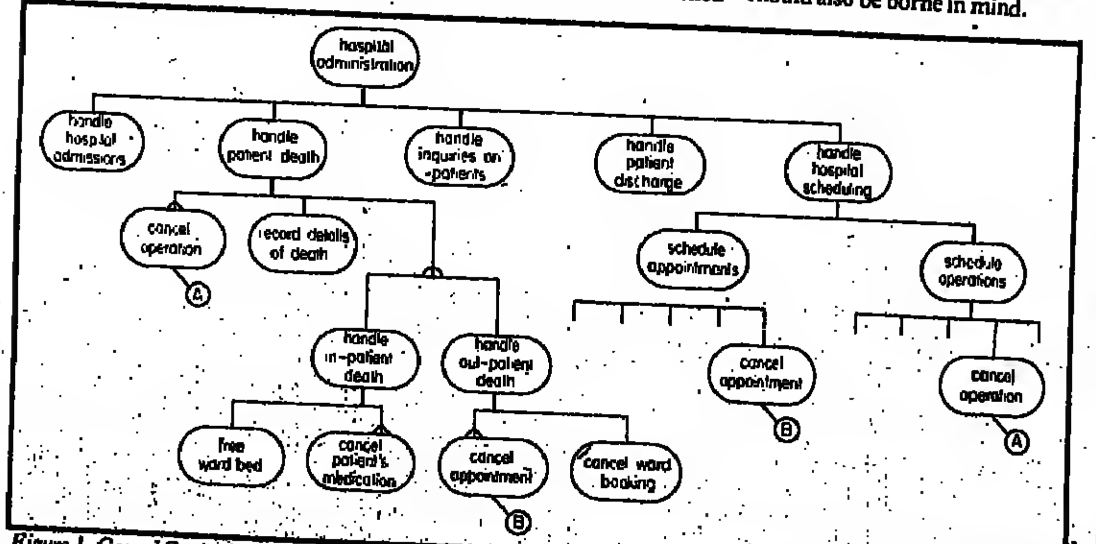


Figure 1. Cancel Operation and Cancel Appointment functions.

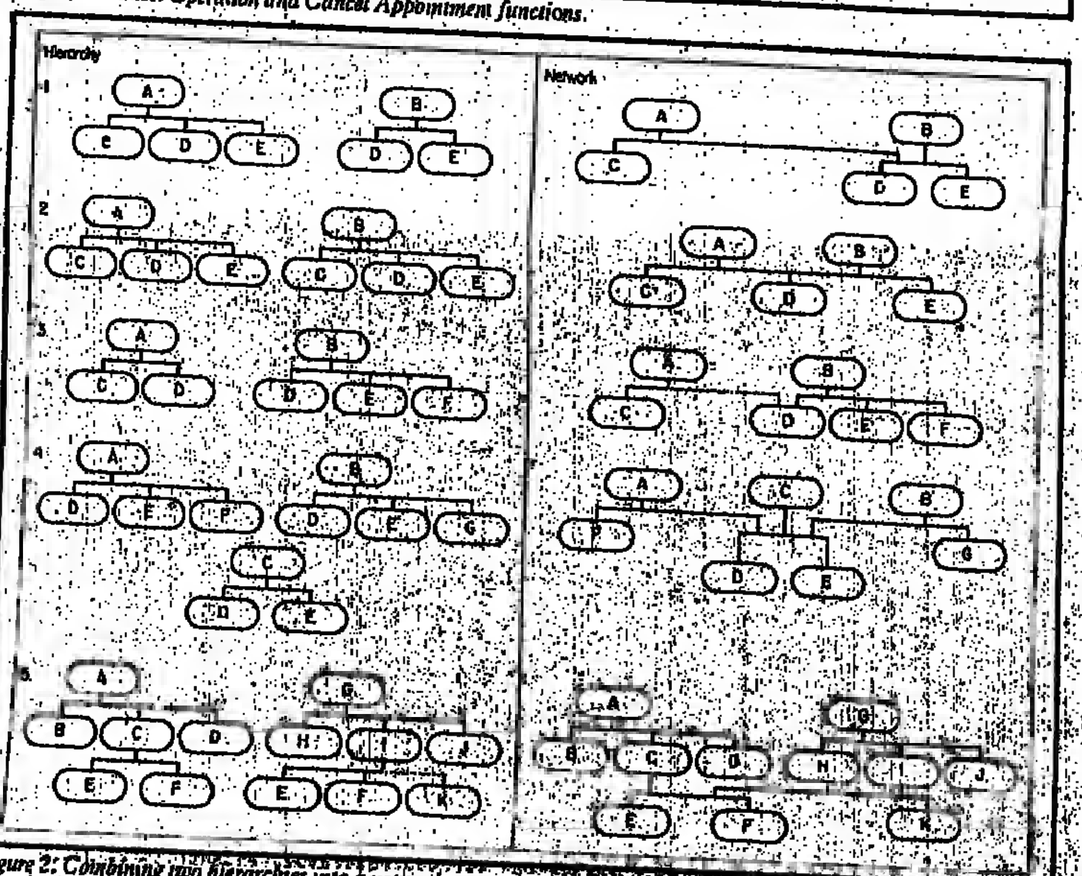


Figure 2. Combining two hierarchies into a network.

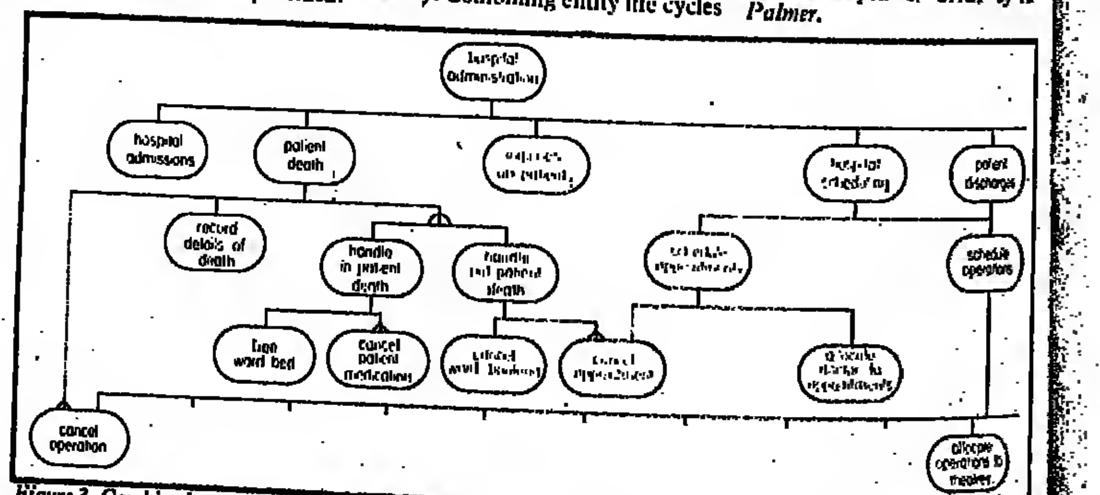


Figure 3. Combined common functions from Figure 1.

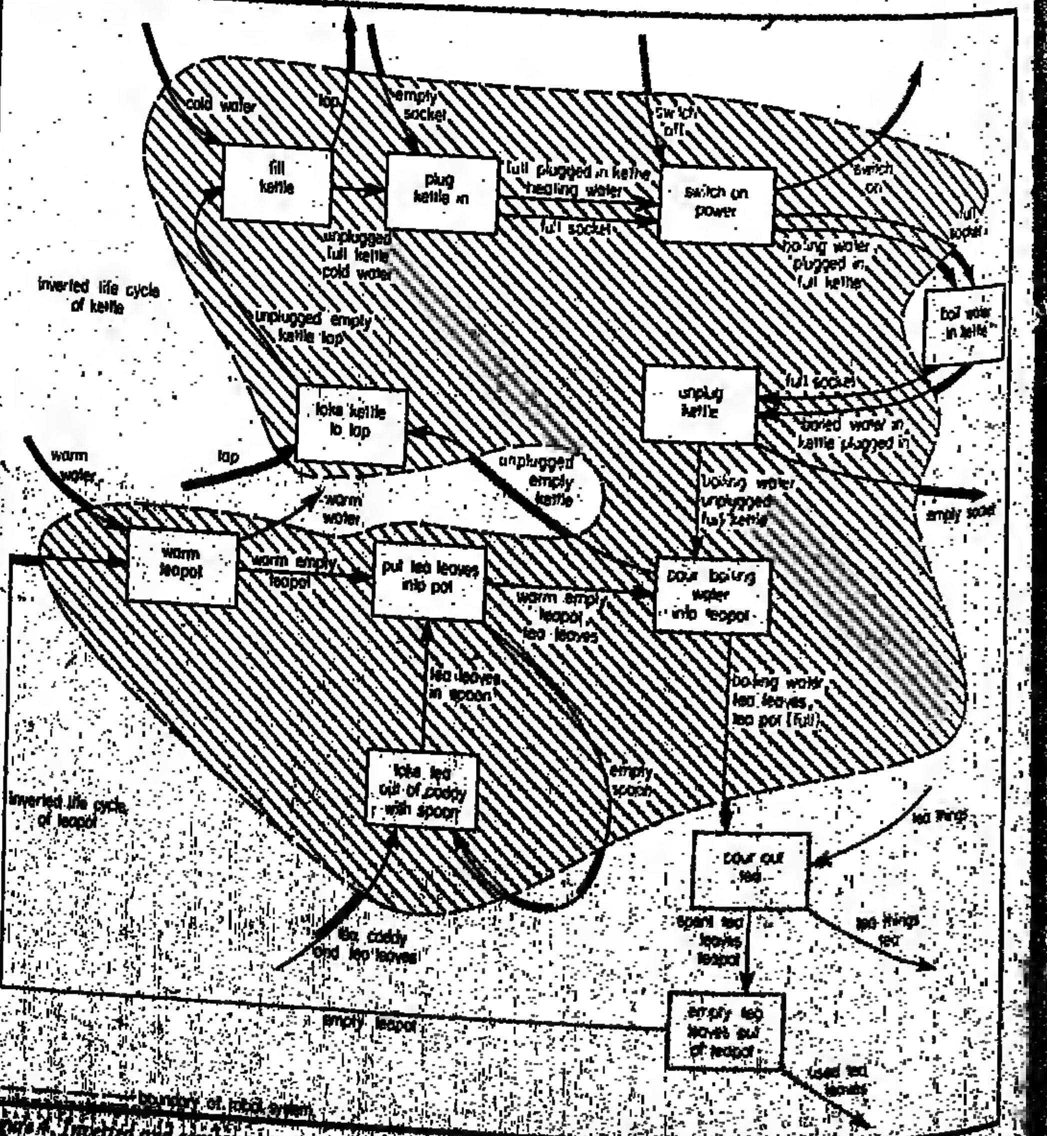


Figure 4. Inverted and combined teapot and kettle life cycles.

PEOPLE

From Moscow back to the IBM board

THOMAS J. Watson Jr, son of the man who built IBM, has returned to the board of directors after serving for a year as US Ambassador to the USSR.

Watson has spent 33 years with IBM, joining at the age of 23 and becoming president in 1952, when he was 38. He was chairman from 1961 to 1971 and the corporation's chairman of the executive committee from 1971 to October, 1979.

He had the bad luck to move to Moscow just before the Russian troops entered Afghanistan, with the damage to US-USSR relations that this entailed. In addition, his inability to speak Russian was criticised.

He remained as Ambassador to Moscow until January 1981, when Ronald Reagan was sworn in as President. He will serve on the IBM board's executive committee, with the title of chairman emeritus.

■ **David Lyon** and **Ken Flach** are newcomers to the sales division of Peripheral Hardware Ltd (PHL). Lyon is Northern area manager, with past experience at Data Dynamics, Sintrom and DRG. Fisch joins from Cole Electronics as field service supervisor.

■ **Brian Pipe** has been appointed managing director of Oceanic. He is replaced as finance division manager by **Mike Hall**, who previously worked for Oceanic as a leasing executive, and has recently been working for Bank of America Finance Ltd.

■ **Peter Miller** and **Peter Golledge** have been recruited as sales executives at General Automation. Miller is a former member of the Burroughs sales team. Golledge joins from CPS Data Systems as sales executive in the Coventry office. **Bob Pinn** has left NCR to join General Automation as technical support executive and joining the company as software manager is ex-Ferranti man **Tony Tucker**.

■ **Dr Christopher Querée** has been appointed principal consultant at Systematica. He is responsible for software package development.

Rushton

Taylor

Graycon

Birt

■ **Keith Rushton**, a director and general manager of Transtel Communications, has been appointed managing director.

■ **Philip Taylor** of Arbat's hardware support division has been promoted to hardware liaison and site planning manager.

■ **Charles Murray Stuart** has become chairman of Baric Computing Services. He is also deputy managing director of ICL, one of Baric's parent companies. **Tim Holley**, manager of ICL's services Group, which includes Baric, Dataskil and ICL Education and Training, has also joined the Baric board.

■ **Peter Debney**, until recently managing director of CSC London, has been appointed to the board of Computer Services Centre Group. He will retain his position as chief executive of CSC bureau operations in the UK.

Centre-file post

■ **Jim Graycon** has been appointed deputy managing director of Centre-file, the computer bureau subsidiary of National Westminster Bank. He was formerly managing director of Management Computing Services, acquired by Centre-file four years ago. He has been a director of Centre-file since 1978.

■ **Les Birt** has been appointed managing director of Bowthorpe Microsystems. He joins the company from the technical services division of Air Call.

■ **Don Guntrip** joins DataText as Southern regional manager, from Monotype Communications where he was UK product sales manager.

Marconi Fellowship Award

THE seventh Marconi International Fellowship award has been given to **Dr Seymour Papert**, professor of mathematics and education at the Massachusetts Institute of Technology. He can use the $25,000 (about £10,000) grant which goes with the fellowship, to originate or complete a project of his choice.

The award was made for the development of a language designed for children, and which has proved useful in the education of children suffering from cerebral palsy, a disability which imposes a passive role on its victims.

A computer education system based on Dr Papert's language Logo encourages a child to take an active role in the learning process. It does this by reversing the usual computer-pupil relationship: instead of the computer teaching the pupil, the child is required to teach the computer.

■ **Rick Greengrass** has been appointed general manager of Data Logic's professional services division. He was made a director of the company at the beginning of this year and was previously a regional manager within the professional services division. Peter Evans, formerly general manager of the company's terminal systems division, becomes marketing director.

■ **Malcolm Wright** has been appointed director of BIS Software. He joins the company from Owners Services Ltd.

■ **Chris Dixon**, formerly director of programmes at EMI Medical, has joined De La Rue Systems as technical director. He will also join the company's management committee.

■ **Malcolm Cree** has joined HSV as general manager in the microcomputer division. He was previously sales manager for Applied Digital Data Systems (ADDS).

■ **Tony Patterson** has been appointed sales director of the defence division of Software Sciences. He joins the company from Plessey.

■ **Andrew Rodger** has joined Computervision Europe as marketing communications manager. He was formerly publicity and public relations manager of Robert Bosch.

■ **Graham Thorne** has become Honeywell's director of communications succeeding Alan Keen who has retired after 19 years with the company.

DIARY

FEBRUARY 27

General practice systems. BCS Medical Groups. University of Surrey, Guildford.

MARCH 2

Database experience in a commercial environment. BCS East Anglian branch. Norwich Union Offices, Surrey Street, Norwich. 7.00.

MARCH 3

System X. BCS Data Communications Group. BCS HQ, London. 6.00.

Police computing developments. BCS Kent branch. Kings Head Hotel, High Street, Rochester. 6.00.

Careers in computing. BCS North Staffs branch. North Staffs Sixth Form College, Stoke. 7.00.

Battles I have lost and won, speaker Maurice Marks, MD of Granada Group Services. BCS North West London branch. Railway Hotel, Greenford. 7.45.

The role of the user-supplier relationship – influence and irritation or fact and fantasy? IDPM Birmingham branch, Saracens Head, Stratford Road, Shirley, 7.30.

Visit to Glasgow Herald – Computing in News. IDPM Scottish branch, Glasgow.

Visit to The Scotsman – Computing in News. IDPM Scottish branch, Edinburgh.

MARCH 4

The aims and ambitions of the university's computer centre. BCS Dundee branch. Ewing Building, University of Dundee, 7.00.

Satellite business systems lecture. IEE. Savoy Place, London.

MARCH 5

Torif – the Army communication switching network. BCS Chester and North Wales branch. Kelsterton College, Connah's Quay. 7.30.

MARCH 9

Talisman – the management of success. BCS Bedford branch. Swan Hotel, Bedford. 7.30.

Ada – a new language. BCS Cheltenham and Glos branch. Queens Hotel, Cheltenham. 7.30.

Bringing hardware and software together in microprocessor systems. IEE. Savoy Place, London.

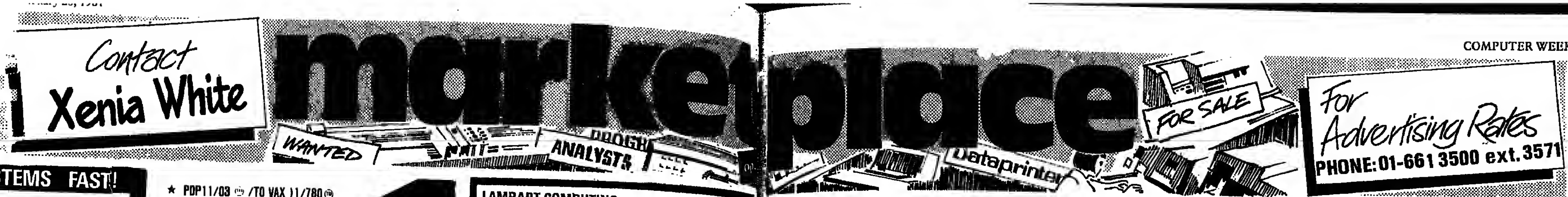
CONFERENCES

■ THE British Chapter of the ACM, an affiliated group to the BCS, with trade journals Computer Communications and Microprocessors and Microsystems are sponsoring the sixth International Computing Symposium, ICS 81, which this year takes systems architecture as its theme. The symposium will be held on March 30, 31 and April 1 at the Institute of Education, London. Sixty papers have been selected to give a view of the developments in this area. In addition, there will be a tutorial on Design by Objectives, given by Computer Weekly columnist Tom Gilb. Fee for the conference is £140 plus VAT. Further information from Christine Jones, IPC Conferences, Surrey House, Throwley Way, Sutton, Surrey SM1 4QQ. Tel: 01-643 8040.

■ Implementing an X25 Interface is the theme of a seminar to be held by the NCC on February 27 at the Mount Royal Hotel, West London. It aims to enable delegates to examine a number of working interfaces and to compare the different approaches; in particular to analyse the viewpoints of a manufacturer, a network user, a software house and the supplier – British Telecom. The fee is £101.43 (including VAT) for NCC members, and £112.70 (including VAT) for non-members. Further information from Seminar Bookings, NCC Oxford Road, Manchester M1 7ED. Tel: 061 228 6333.

■ Common problems arising from the use of VDUs will be examined in a one-day conference to be held at the lecture theatre, University of Technology, Loughborough on March 19. Organised by the Husat Research Group of the University, Health Hazards of VDUs aims to present the latest findings on indirect health risks arising from VDU operation. Authorities on VDU ergonomics will speak on issues such as eye strain, postural fatigue and job stress, and offer some possible solutions. Further information from the secretary, Husat, The Elms, Elms Grove, Loughborough, Leics LE11 1RG. Tel: (0509) 212041.

■ Three IEE/IEETE conferences are planned. From March 17-20, Telecommunication Transmission will take place at IEE Headquarters, Savoy Place, London. The third International Telecommunications Energy Conference will be held at the Lancaster Hotel in London from May 19-21; and Software Engineering for Telecommunication Switching Systems is scheduled for July 20-24, and the venue is the University of Warwick, Coventry. Further information from the IEE on 01-240 1871 or the IEETE on 01-836 3357.



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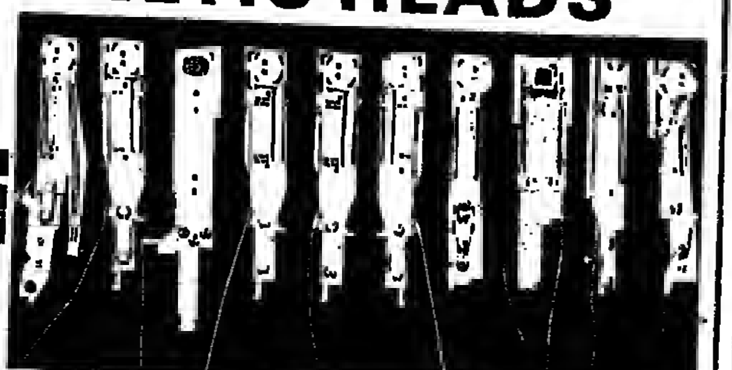

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Bank of England on starting blocks for 'DP Olympiad' title

COMPUTASTARS

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COMPUTASTARS and Computatug organiser Gordon Cairns does not display overt partiality towards entrants in his two competitions, but a native-born Scotsman may be forgiven a touch of North of the Tweed pride.

"I have just received the first Scottish entry for the 1981 competition," he explained. "It comes from the Edinburgh Regional Computing Centre and marks its debut in Computsstars."

Cairns outlined the current entry position. "At present, I have received over 50 entries for Computastars, which is marginally ahead of the equivalent period last year.

"This is only an approximate verdict as this year marks the first occasion that I have designated a specific closing date for entries. That date is February 28 and means that potential entrants must speed up their applications.

"There is substantial interest from the banking sector, with Barclay's entering a nationally-selected squad while the Bank of England is scheduled to appear in the Southern area heats at Barnet on May 16.

"As you can imagine, I am giving considerable respect to the entry cheque from the Bank of England," he added.

"I believe that many potential entrants are still making the mistake of thinking that there is plenty of time left before they need submit their entries.

"The fact is, however, that our closing date of February 28 (this coming Saturday) leaves little time for organisation before the regional events, with the Midland and Northern heats at Birmingham on April 25 and at Cleckheaton on June 6 respectively.

"These preliminary heats are followed by the national final at the New Alexandra Stadium, Perry Bar, Birmingham on Sunday July 26, which gives both teams and individuals the opportunity of qualifying for the European finals in Holland."

Cairns explained that Computastars Europa will take place in Holland during the late summer or early autumn with Utrecht or Nijmegen the most likely venues.

Irrespective of the final decision about the Dutch venue, Cairns is more concerned at this stage with ensuring that our national Computastars and Computatug events attract a large and representative entry.

"Computatug has attracted only four men's and one woman's entry to date," he added. "I do not want to see a situation where the first heats also become the UK final by default."

All of which adds point to Cairns' appeal for a last effort to ensure a record entry for both events.

"Please make sure that your entry form — or at the very least, a verbal commitment to compete — reach the Croydon office by Saturday February 28 at the latest."

This Computastars competition is definitely on the (hockey) ball!

COMPUTASTARS ENTRY FORM

We have read and accept the conditions of entry for the Computastara 1981 competition and would like to enter ....men's teams ....women's teams

Name of team(s)..

Company..

Address..

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Name of contact for team(s)..

Telephone No .... Extension ....

Signature of DP manager or equivalent authority ....

Position held ....

The unit would like to compete in the following region: NORTH (Cleckheaton) MIDLANDS (Birmingham) SOUTH (Barnet). Please circle appropriate region.

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Name of contact for team(s)..

Telephone No .... Extension ....

Signature of DP manager or equivalent authority ....

Position held ....

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ON THE OTHER HAND, I SUPPOSE LUDD HAD A POINT...!"

"SO MUCH FOR SIZING EXERCISES THEN!"

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"DAMN THE LUNCH! IT'S NOT MY TURN IN THE ABC TIL FRIDAY!"

Lighter side of DP life

HERE are nine cartoons. They all about computers and working life of an installa Write in nine captions and you £400 of free holiday – if yours the funniest, that is.

Sounds easy? Not so, and th are a couple of waste bins in t office of Effectis Gravis manag director Mike Elman stuffed full reject entries to prove it.

They are the unlucky losers in competition organised by the Lo don-based recruitment consu tancy and aimed at managers computer installations across th country. The prizes were £5 £200 and £100 travel vouchers the winning three entries.

Winner Alec Häfele with his Brigitte.

The judges – Elman, Eff director Mike Hampton and Co puter Weekly Editor Sim Timm, who also presented th prizes – were subjected to all so of pressures.

The obvious one was the use Effectis Gravis' name in the cap tions. Several entrants went so as to work it into every one including a particular man who set them to verse – but judges were having none of that.

Coming out on top as win was Alec Häfele, whose entry shown here. He is operati controller at the Liverpool Vict Friendly Society based in Sou ampton Row, London, and wo at an installation of twin ICL 29 running under VME/B and DM George 3.

"If you ran VME/B you'd kn where my inspiration ca from," he quipped at the priz giving ceremony last wee "Everyone in our installati knows of Ludd – I explain them who he was and it's appr priate to VME/B" (see his fou cartoon).

Häfele, 30, started in comp ing as a van driver for ICL. transferred to operations in 19 and has been operations contro at his present site for five years.

Second and third prize-winners Do Tyrrell (left) and Keith Goodyea

He and his wife Brigitte, w helps run a correspondence cou at London University, leading to BSc in Economics, plan to p their money to look up an o school friend in Canada. In fact t Häfele family seems to be on lucky streak at present. A we after he heard he had won, h parents won a free trip for two Los Angeles.

Second in the competition w Don Tyrrell, assistant installati manager at the regional comput centre in Harold Wood, Essex f the North East Thames Regio Health Authority. Tyrrell, 46, h been in DP for 17 years.

Third placed Keith Goodye bureau manager at the TCS Co puter Bureau in Guildford, Su rey, will put his £100 voucher t wards a hotel Christmas in t West Country.

Emma Bird looks at the future of Prestel

Acting as gateway to viewdata systems

MARKET research has shown that business users value viewdata's capability for collecting information more highly than its information dissemination capability.

Its simplicity of use means that entering data into and retrieving it from company computers, which in the past was the exclusive province of DP professionals, can now be done by agents, dealers, maintenance engineers, salespeople (especially those working from home) and other employees.

The key issue is the involvement of the company's own computers, only possible at present using private viewdata systems. The provision of interfacing software between the public Prestel system and private company databases, leading to an increased ability to use Prestel as an information capturing system, could be crucial to its profitability.

The position of Prestel is illustrated by its present sales figures. The announced aim was to have 50,000 Prestel sets installed and working by the end of 1980. Although only 7,252 set users had registered by December 1980, 6,341 in businesses and 911 in homes (figures displayed on Prestel, December 19, 1980) new registrations are running at the rate of 500-600 per month despite the recession.

Of the business sets roughly 30% are in use by television companies or British Telecom, organisations involved in promoting Prestel rather than end users. It has been estimated that a penetration of 50,000 sets would be necessary before acting as an information provider on Prestel became commercially profitable for the 130 main information providers and 300 subsidiary information providers at present in operation (Heys, 1980).

A Prestel success story is its use by the travel trade, which accounts for roughly 30% of the business sets installed.

Is the slow take-up of Prestel largely attributable to the tardiness of set manufacturers in making adapted sets available, and to the associated high cost (£1,000) of the non-mass-produced article? This is certainly a causal factor, but can we be confident that even if sets were provided free or at very low cost (as with the proposed distribution of "telephone directory" terminals in France) the Prestel service would reach acceptable levels of use?

The author's view is that Prestel, with the present emphasis on the provision rather than the collection of information, will be difficult to market profitably to business users, and that the idea of paying for information will remain alien to the majority of domestic users for at least the next five years.

Prestel is serving as a prototype public information service, emphasising ease of use and mass market appeal, but the advantages from the success of such a service may well be won by competing suppliers, who move into the market after they have learnt from Prestel's weaknesses and mimicked its virtues.

However, an extension to Prestel has recently been announced which could significantly improve its chances of profitability. This is the use of the Prestel system to provide the networking for the third party database access — a facility known as a gateway.

The promoters of Prestel hope that its combination of low cost and ease of use will be attractive and that, although relatively slow and having somewhat limited information retrieval capabilities, it will nevertheless appeal to enough users to make it successful financially.

Although its profitability depends on issues of cost, power and ease of use, other features are central to the Prestel concept. These include colour and graphics and two-way communication, allowing Prestel to be used for online analysis of data and for message exchange between users.

The development of this last feature, especially expressed as the gathering of information by companies (from the kinds of employees described above) will be a key factor in determining Prestel's future.

The configuration of Prestel's software allows the user to interact with the information provider via response frames — pages into which users can insert data or alphanumerics depending on the type of keypad. Many information providers, for example Which? magazine, British Rail and the Royal Automobile Club, now use response frames to elicit requests for further information in hard-copy form such as brochures.

The mass market orientation of Prestel has led to the use of response frames for "remote" shopping, purchasing goods at a distance from the point of sale. The first commercial application was made by a wine club. As an information provider it lists available wines on Prestel and then presents a response frame through which users can purchase cases by inputting their requirements plus their credit card numbers.

A number of goods can now be bought or reserved on Prestel including air tickets, hotel rooms, calculators and squash rackets.

The opportunity to shop from home or from the office should increase Prestel's attractiveness to the user, although it is too early to say whether or not this form of remote shopping will become really popular. There are indications that users will purchase goods, such as tickets, whose characteristics can be clearly specified in words and numbers, but not goods which need to be visually and tactually evaluated, like clothes or furniture.

From the supplier's point of view Prestel is limited by the fact that it does not yet deliver orders or reservations direct to the supplier's own system. Instead, orders have to be collected from the Prestel computer. The provision of third party database access is planned for the future.

At the beginning of November 1980, a new strategy for attacking identifiable market sectors was announced by Prestel. The first sectors were to be travel, investment, commercial property and agriculture.

A large part of the Prestel database is devoted to information on rail and flight schedules, holidays and tourism. Over 1,000 of the 5,600 travel agents in the UK now have a Prestel terminal.

But Prestel management's plan of encouraging greater use by the travel industry has encountered a setback caused by a technical limitation — holiday bookings cannot yet be made and confirmed for walk-in clients. A number of tour operators are therefore turning away from Prestel to private viewdata systems which offer a solution to this problem by using a software gateway into the operators' reservations computer system.

Tour operator Thomas Cook has spent £250,000 on viewdata including terminals and processing hardware. In November 1980 it paid £32,000 for a three-year licence for the IVS-3 private viewdata system, owned by Aregon and marketed in the UK by Systems Designers Ltd, SDL.

It will be used as a point-of-sale system for both checking availability and ordering holidays. IVS-3 is expected to interface to an IBM 4341, making the IBM-stored files available on the private viewdata terminals.

Thomson Holidays is also planning to beat Prestel's limitation on bookings and confirmations by installing a private viewdata system. As with Thomas Cook, the system will provide a gateway as well as providing across-the-board holiday information.

If it is to operate profitably, Prestel will need to adjust to the upsurge of private viewdata systems. The best way of doing this would seem to be to offer a service which capitalises on the existence of private viewdata. The provision of networking for third party database access would be an ideal means.

Plans were announced on February 12, 1981 to increase the volume of information accessible through Prestel by using a data communications network to link it to large-scale specialised databases. Designated Gateway (a classic case of a generic term given a specific meaning), the new facility allows for two-way interaction between a Prestel terminal and a private business computer system.

This approach has been adopted by the Deutsche Bundespost Bildschirmtext videotex system which provides a packet switching interface for information providers' own computers as an integral part of the videotex network. Aregon International was commissioned to design the software and subcontracted the development work to SDL.

British Telecom has recently bought the worldwide marketing rights to this software, and plans to offer Gateway as a public service in the UK starting in March 1982.

The capability for accessing third party databases was welcomed by the West German business community, and seems to meet its needs much better than the centralised Prestel architecture. The chief advantage of the Bildschirmtext architecture is that the network carries all orders, reservations, etc, entered at any terminal directly into the company's own computer.

Banks, tour operators and mail order companies in particular have made enthusiastic use of the service. It is possible, for example, to call up a bank computer system from a business or home Bildschirmtext terminal, interrogate the system to find out the state of an account, and then instruct the bank to carry out certain actions, for example to send money through the post.

The provision of Gateway to third party databases on the UK Prestel service will change its character fundamentally. The interfacing software will run on the 20 Prestel GEC 4082s. This national network will provide access by local telephone calls to the majority of third party databases.

One of the first uses of Gateway is expected to be by businesses using their Prestel terminal to go directly into airline databases to book flights without involving a travel agent.

Access by local call is crucial to Prestel's chances of success as the networking agent. Competitors will have to rely on private networks of dedicated telephone lines, thus raising the cost of the service considerably.

Three competing networks are already in existence or under development — those of British Leyland, the Stock Exchange and Travicom. It is estimated that from five to ten per cent of users will be able to set up satisfactory private viewdata networks without using the public telephone network. The remaining 90 per cent will prefer to use the Prestel networking solution.

Prestel has blazed the trail, but there is a danger that, as a public information service, it may not reap commercial benefits from being first. With Prestel defined as a carrier of low-cost, easy to retrieve information, the author's conclusion is that it would not, to use the Prestel executive's own words, "achieve overall economic viability within the limit of the loss-making period that the parties involved in Prestel are willing to accept."

It is the evidence of the importance of using viewdata to handle and augment internal company data that suggests the most realistic path for Prestel to follow: provision of the networking for third party database access.

If Prestel redefines itself in this way it can capitalise on the growth of private viewdata systems and its new job of acting as the gateway to both private viewdata and other computer systems should enable it to achieve sound economic viability.

This article derives from a longer report, to be published on March 2: The Future of Prestel, by Emma Bird, Urwick Nexos Limited, £6.50. Obtainable from Urwick Nexos Ltd, Clove House, The Broadway, Farnham Common, Slough, Berks SL2 3PQ.

Dr Emma Bird is a senior member of the Systems Research Division at Urwick Nexos. She is qualified in psychology, psycholinguistics and industrial relations, and is focusing at present on the contribution which user friendly systems such as Prestel can make to business effectiveness.

Implications for survival*	For	Neutral	Against
Colour and graphics	✓		
Ease of use	✓		
Little readiness to pay for information			✓
Remote shopping via Prestel	✓		

Figure 1: Arguments for and against the survival of Prestel in the domestic market.

Implications for survival	For	Neutral	Against
Colour and graphics		✓	
Remote shopping via Prestel	✓		
Cost	✓		
Inadequate computer storage and processing capacity			✓
Searching method			✓
Ease of use	✓		
Development of private viewdata systems			✓
Provision for third party database access	✓		

Figure 2: Arguments for and against the survival of Prestel in the business market.

Shopping in West Germany via the Prestel-based viewdata system Bildschirmtext, using Gateway software. Similar facilities may be available in the UK when British Telecom introduces Gateway in 1982.

Novel key to hotel safety

A FRESH approach to computer-controlled hotel room security and management has been developed by ARC Ltd, a Watford-based high technology company specialising in microprocessor-based control equipment.

Called Guestkey, the system is claimed to be a comprehensive security and room management system. Incorporating the latest microprocessor technology, it dispenses with conventional keys, Guestkey issue being controlled by a central computer system.

Staff using the system are identified by a personal key and password. All keys issued during their shift are logged by the system, enabling management to carry out spot security checks.

Other vital security features include invalidating all stolen, lost or duplicated keys, detecting unauthorised keys, random key and lock combinations and immediate intruder alarm.

Guestkey does not rely on conventional locks with their tendency to error and has its own independent power back up against mains failure. On the overall hotel management side, its ability to provide room status information gives a complete picture of room availability.

Shifts can be changed at will, enabling hotel staff to be reallocated groups of rooms without the security of the system being compromised.

Because the keys have to be "married" to correct locks and the lock combinations can be changed whenever necessary, issued keys may be taken away by guests as souvenirs of their stay in the hotel.

Cost of the Guestkey System, which includes the computer and print-out equipment, is £160 per room, depending on the size of the installation.

Alternatively, the cost of the system to the hotel on a typical rental agreement can be as low as 17p per room per day.

ARC Ltd (CW) Shakespeare Industrial Estate, Shakespeare Street, Watford, Herts WD2 5HD. Tel: Watford 443000.

Guestkey's Print-out unit enables the operator to check on individual rooms and overall security.

VDU takes the (eye) strain

AN advanced microprocessor controlled VDU with a 12in screen and IBM-type keyboard, the Aller 1201 incorporates design and styling features to reduce operator fatigue. The possibility of eye strain is reduced by using a green screen phosphor, a clear 12 x 7 character matrix and non-reflective keytops.

Keyboard design includes a separate cluster for entering numeric data, and the scroll feature allows the operator to position the 24-line display "window" anywhere in the 50 lines held in the VDU's memory.

The RS 232 serial Interface has switchable transmission rates between 75 and 9600 baud. Split transmission rates are available as an option, as is a 20mA current loop interface.

Full 96 character ASCII sets are available and custom characters or control codes may be added by simple changes.

Aller Services (CW, High Street, Aller, Somerset. Tel: 0458-250414.

Central console for multiplexer

NEW Jersey-based Infotron Systems Corp has added new capabilities to its Supermux 680 Statistical Multiplexer allowing users to communicate with multiple units from a central console.

The console may be used to diagnose problems, transmit messages and receive status reports and the Supermux 680 reduces data communications costs by concentrating up to 32 input lines over a single 9,600 bits per second output.

Statistical techniques enable the microprocessor-controlled unit to transmit only active data inputs, conserving precious bandwidth so that the throughput is double or better than that of conventional multiplexers.

An operator can send a message to any channel in any local or remote Supermux 680 using the new console. User instructions may be transmitted to a remote location and diagnostic test messages may be composed.

The operator may request system statistics such as line and buffer utilisation, event and configuration reports from any local or remote Supermux 680. The reports contain quantitative data useful in spotting potential problems and planning system expansion.

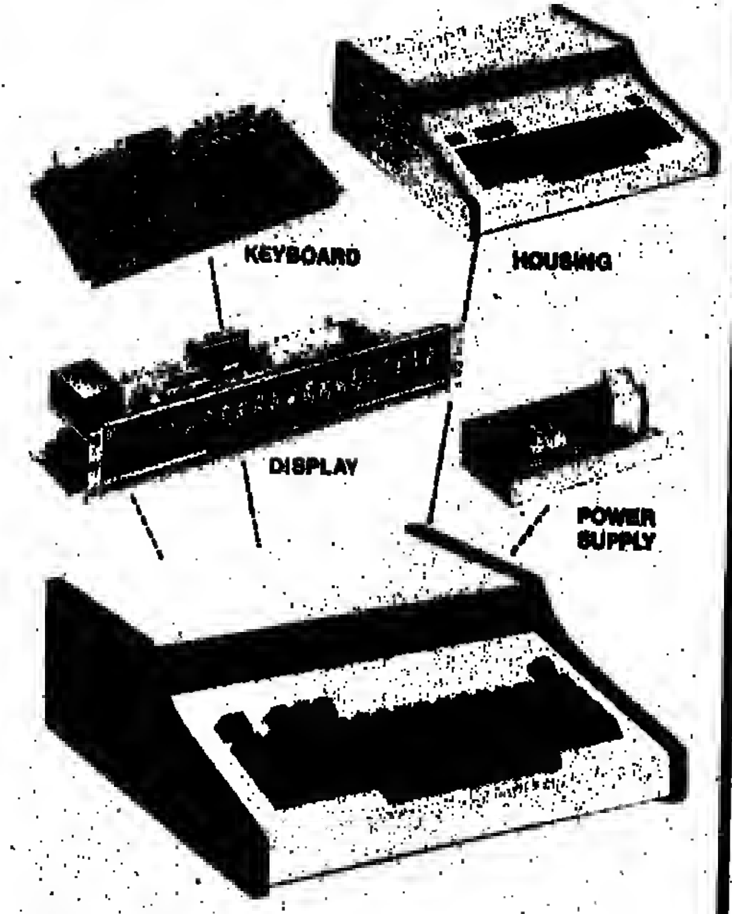
The line and buffer utilisation report shows average and peak data rates and buffer use. Event reports describe unusual occurrences and configuration reports show selected programming options and operating parameters for each system channel.

Consoles may be any ASCII-compatible CRT or printer, and are connected to a separate reporting channel interface on co-located Supermux 680 units. They may also be located away from the 680 site.

The Supermux 680 multiplexer also provides error protection, priority control, data compression, ABR, downline loading, flow control and an optional built-in modem.

Inputs may be any combination of synchronous and asynchronous, dial-up and dedicated with mixed protocols.

Infotron Systems Ltd (CW), Poundbury Road, Dorchester, Dorset DT1 2PG. Tel: 0305 66016.



This four-part assembly comprises the complete Cherry system.

Alphanumeric system for all-round usage

CHERRY has developed an Interactive Alphanumeric Display System comprising four basic modular components that can be used either individually or collectively as a comprehensive unit.

A self-contained 14-segment, 16/20 character alphanumeric single-line display contains microprocessor-controlled circuitry including drivers, character generator and refresh memory.

Switch-selectable features include full or half duplex; even, odd, or no parity; 5, 6, 7 or 8 data bits per character; 1 and 2 stop bits and 8-switch selectable baud rates from 110 or 9,600.

Three end-of-line modes are featured and there is left entry with automatic line feed carriage return, writeover carriage return and horizontal scroll with five brightness levels available to provide a 6 to 1 range of light output in 4 dB steps.

A fully addressable flashing cursor indicates the next character position to be written and cursor functions include backspace, tab, selective addressing, erase to end of line and erase to start of line.

There are additional standard features like RS-232C, TTL or 20mA loop single power supply operation (12 VDC 750mA), full I/O buffering, handshake for increased communications speed and full ASCII input.

The solid-state capacitive keyboard was developed specifically for Cherry Interactive Display Systems and has 66 ASCII encoded keys plus functions for other keys with quick-change clear plastic relegendable tops.

The custom-designed enclosure is in beige aluminium with solid hardwood sides. Besides housing the other modules, space is also available to install additional hardware.

Cherry Electrical Products Ltd. (CW, Coldharbour Lane, Harpenden, Herts AL5 4UN. Tel: 05827 63100.

Data logger Orion heralds a new era

SOLARTRON Instrumentation Group has launched a data acquisition and sequence control range called Orion, which has three microprocessors and houses facilities normally found in many larger computer-controlled systems.

Orion is said to collect accurate data from a wide range of sensors, handling thermocouples, resistance thermometers and strain gauge transducers automatically.

Other devices like opto-sensors, magnetic pick-ups and plain voltage, current or resistance can be measured with equal ease and integrity.

Status and event inputs may be observed or quantified and events timed. Orion also measures timing events; inputs in binary or BCD and has the ability to gather readings from external modules such as single-chip A-to-D convertors or counters.

All these functions are organised and controlled by simple front panel keys.

Orion can cope with 200 inputs or up to 600 with extension slaves at high speed which makes data reduction essential. To meet this need, comprehensive facilities are provided.

The system caters for thresholds with dead bands, detection of change, maximum and minimum, mean value and standard deviation.

Data Logging manager, John Shave says, "We realised from the start that such versatility and power could mean involving the user with a programming language unless we designed something unusual. Orion requires no involvement with software. It's all built in and accessed by a few keys on the front panel."

Solartron has achieved this by "soft" keys which interact with the display, the menus being organised to achieve setting up with a minimum of key strokes. This reflects Solartron's philosophy that the best loggers are those which can take measurements with the shortest possible set-up time.

When setting up is complete, programs are stored in memory with battery back-up and are available for automatic restart after power fail.

In addition, the tape cartridge can give permanent storage that may be loaded immediately when needed.

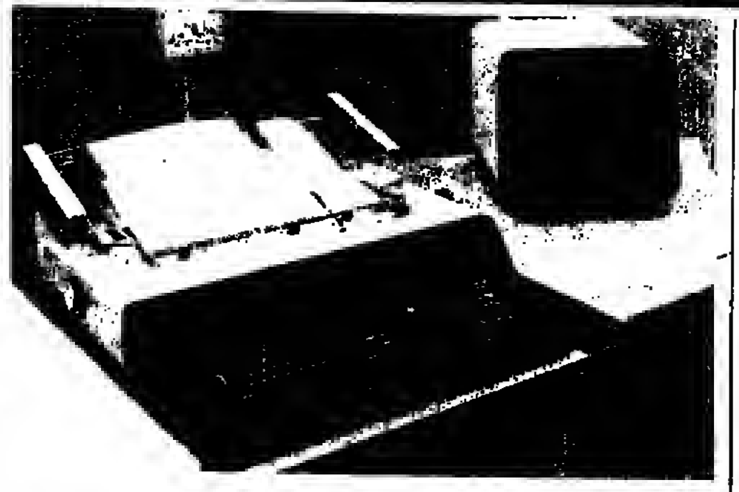
The cartridge can store 50,000 measurements and is only one of the built-in recorders, the other being a hard copy paper-strip printer.

Interfaces to RS232, RS422 or the GPIB permit external devices to be connected if required.

Solartron points out that Orion is multi-functional. It can interact with a test rig to make measurements and control the rig.

The company believes this product will expand the data logging market beyond the traditional research and test areas. Many industries require equipment to check a process or production line, monitor quality or control environmental tests, day-in day-out without costly labour overheads, says Solartron.

Solartron Electronic Group Ltd (CW), Victoria Road, Farnborough, Hants. Tel: 0252 44433.



The Facit D12 is aimed at the small business market.

Multi-role calculator

THE FACIT D12 flexible disc (FD) accounting machine is an office computer developed specifically for small business use which has been designed to cope with all administration routines and is said to combine the roles of accounting machine, calculator, automatic billing machine and computer.

It is easy to use and install, can be placed on a desk and plugged into an ordinary socket and requires no specialist training, says the company.

The D12 can handle continuous forms, separate invoice sets, journals and ledger cards and the wide carriage should permit several documents to be used at once. The optional VDU can be used for interrogating files without hard copy print-out.

There is an indicator panel which shows the exact position of the program, and the routine can be interrupted for file interrogation and picked up at a later stage for operator guidance.

The system has 64K of memory and 1 megabyte of disc storage.

Facit (CW), Maidstone Road, Rochester, Kent.

VDU is set for the top

CPU Computers of Woking has introduced the Pentland Mark VIII visual display unit which is expected to take over as the top selling model of the range.

The keyboard has five cursor control keys plus a 62-key Qwerty layout and eight auxiliary function keys, 11-key numeric pad and four editing keys.

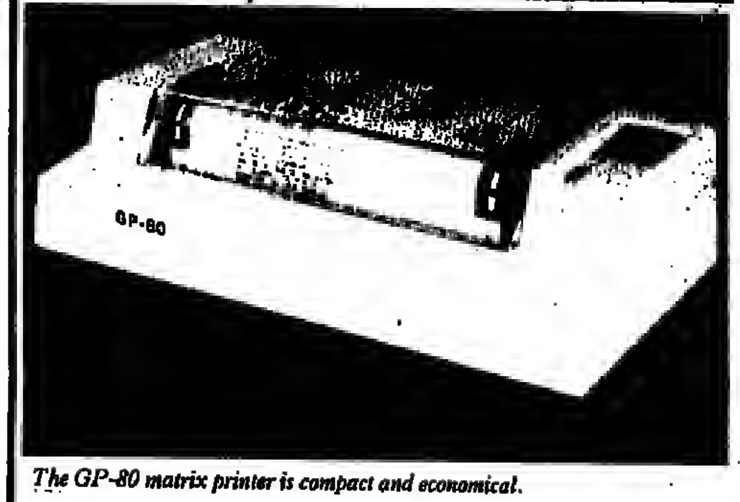
Visual features include block or underline cursor, steady or blinking plus protected fields, reverse video and half intensity controls. The Pentland Mark VIII also includes auto line feed and scroll and X-Y cursor addressing.

There is a 12 inch screen with capacity for 1,920 characters in 24 lines of 80 characters.

The primary interface is RS232C, V24 with 15 baud rates from 50 to 9,600 baud and a 20-60 mA current loop interface and auxiliary peripheral interfaces are available.

Price of the Pentland VIII starts from £465 according to specification, quantity etc.

CPU Computers Ltd (CW), St. Johns, Woking, Surrey.



The GP-80 matrix printer is compact and economical.

Low-priced matrix printer has educational appeal

THE GP-80 is a high-performance matrix printer, principally intended for use in the commercial and educational fields.

Its £248 price tag is designed to ensure that the printer receives wide acceptance with the hobbyist and all who need hard copy from their microprocessor systems.

Printing rate is 30 characters per second, with a full 80 columns of 5 x 7 dot matrix format. The standard ASCII 96-character set is provided, with special English and German characters.

Forms up to a maximum eight-inch width may be used and are rear-loaded to an adjustable tractor. An original and two copies may be printed with suitable paper.

It measures 132mm x 172mm x 328mm and weighs 2.5 kg, its dimensions thus providing an additional advantage.

D.A. MacDonald Microprocessor Systems (CW), 3 Holmesland Drive, Botley, Hants. Tel: 04892 81108.

Financial security device from Racal/Diebold

RACAL-MILGO Inc of Miami has introduced a device for use with Diebold equipment that will permit financial institutions to lineshare security data and main channel data communications.

Called the Model 911 security interface module or 911/SIM, the product is the first result of last year's co-operative marketing plan involving Diebold and Racal-Milgo, in which financial institutions will be offered a combination of the firms' technologies to reduce data communications costs.

In this case, 911/SIM is incorporated with a variety of Racal-Milgo modems and the Diebold MPS 1020 proprietary security system to permit line sharing.

Operating on the same communications line as main channel asynchronous or synchronous data, the 911/SIM runs at a data rate of 75 bits-per-second in full duplex mode.

It permits line sharing by FSK channel operation apart from main channel operation on the high end of the communications bandwidth.

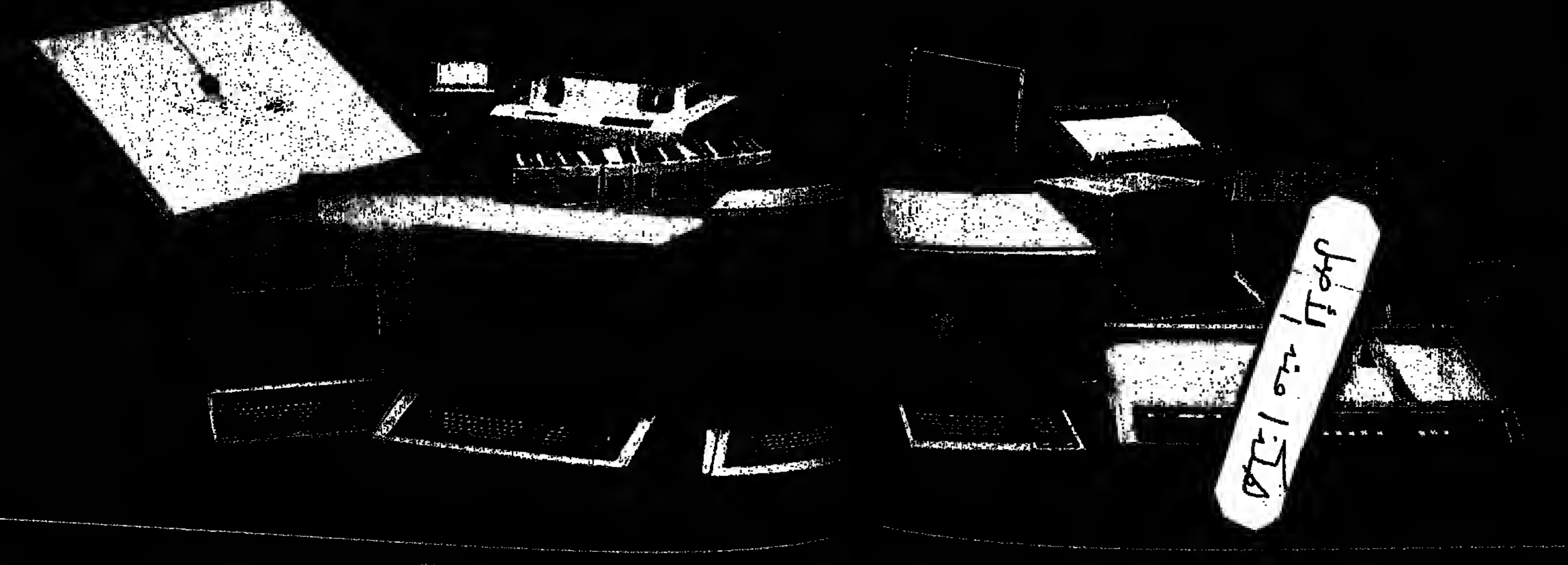
This separates the low speed security channel data transmission between remote security devices and the central security controller from main channel data transmission.

Unconditioned lines may be used for 911/SIM operations, but either C-2 or C-4 conditioning may be required in some cases.

Significant additional features of 911/SIM include provisions for 24-hour, battery-operated backup to prevent security information from being interrupted even if commercial power fails. There is also a dial backup option to restore service of leased lines fail and a loop system option in which security equipment may be polled in IBM 3600 financial networks environments.

CMOS microprocessor controllers enable all control, decision-making and communications functions to be implemented as well as system transparency to the main data communications network.

Racal-Milgo Inc (CW), 8600 N.W. 41st Street, Miami, Florida 33166.



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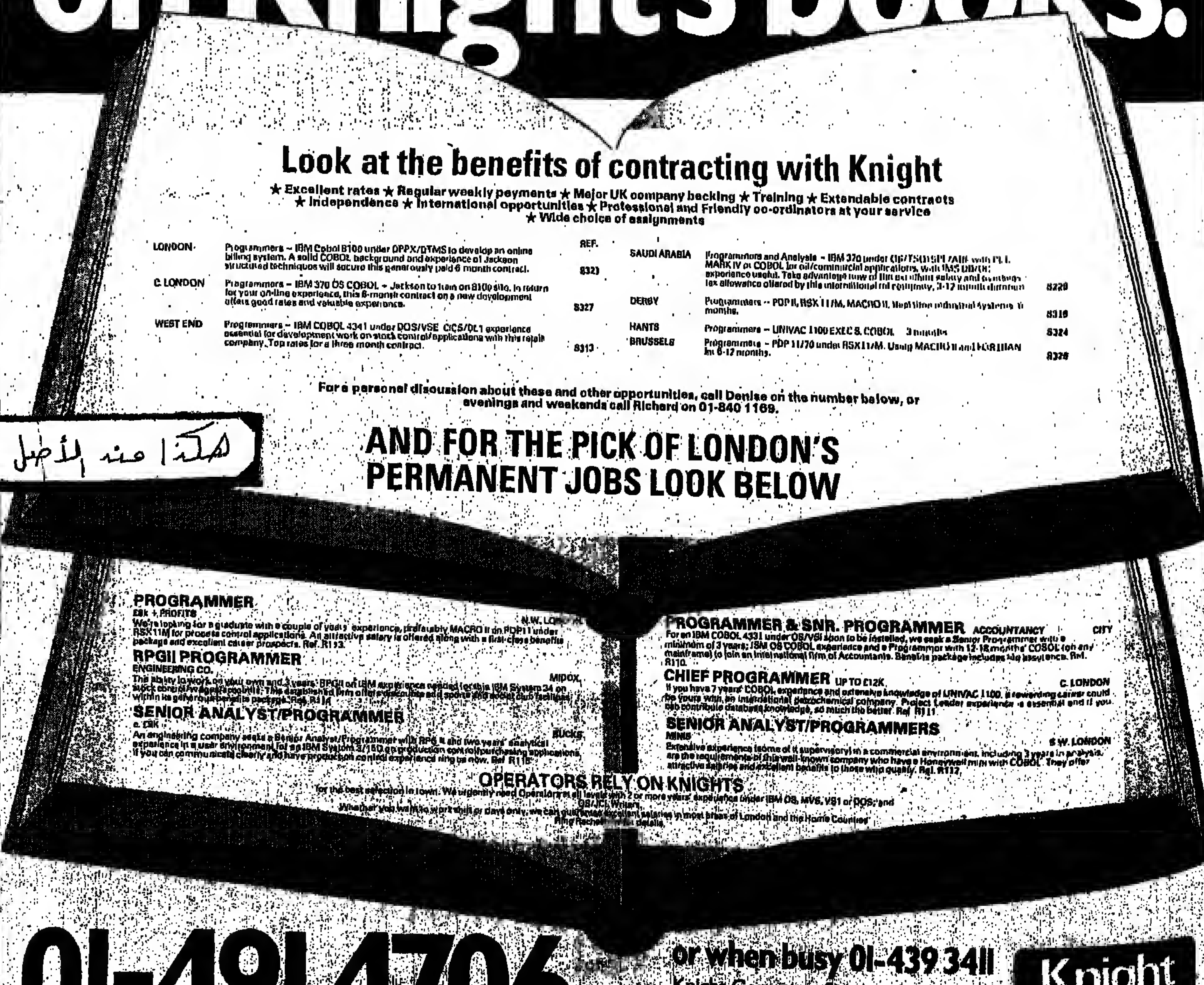

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A relevant degree, supported by a good knowledge of microprocessors and peripherals is required for this position but the main ability will be in managing a large team of hardware engineers. Many of these engineers possess exceptional innovative skills in the field of digital electronics and it is essential that their varying skills are blended to maximum effect.

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The successful candidate is likely to have had several years' hardware development experience in a computing environment with a proven managerial record.

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These senior positions will lead highly competent system software development teams.

Software being developed covers all aspects of operating system and system software including linkers, loaders, debugging aids, monitors, configurators, and file integrity checking routines, together with a wide variety of software tools necessary in the office automation environment.

They will have direct line responsibility for designing, developing and maintaining software implementation schedules.

Candidates are likely to have had over 5 years' experience of software development in a computing environment ideally with a proven software managerial record.

Located in the EAST MIDLANDS, our client offers an excellent remuneration package including a full range of employee benefits with BUPA and generous relocation expenses.

REF: S1/2602

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Our client is a well-known major organisation able to offer a secure future and positive career progression. Due to extensive expansion of the Management Services division they are seeking to recruit experienced IBM COBOL Programmers at all levels.

If you offer more than eighteen months' experience and are looking for a challenge then this is your opportunity. Working in, or leading, a programming project team you will be involved with major IBM hardware utilising CICS and Database facilities.

An excellent starting salary is supported by big-company benefits, and relocation expenses will be paid if necessary.

REF: E1/2602

SYSTEMS ANALYSTS

WEST LONDON **£ NEG.**

Our client, a major commercial organisation, is seeking to recruit systems analysts wishing to undertake challenging project work in a highly successful business environment.

Current project work includes the development of teleprocessing systems based upon advanced hardware and candidates can expect to gain valuable new business experience as well as utilising their own background to the best effect.

A sound commercial systems background is required together with business systems appreciation as the role will require the development of systems from initial business feasibility, through design to implementation.

The company offers a package of benefits which one would expect from a successful business operation and this obviously includes relocation assistance where applicable.

REF: NW1/2602

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N. HANTS **£7,500-£11,000**

A successful organisation now wishes to appoint several additional Programmers and Analysts in order to complement their development programme resulting from increased business activity.

Working to professional standards and realistic schedules, these positions present exciting opportunities to develop individual skills and to progress in a fast-moving environment.

The hardware consists of a powerful IBM 4300 machine and utilises some of the most modern software and utilities available in an on-line environment.

Both positions require applicants to have at least two years' in-depth experience of their relevant disciplines and knowledge of financially biased systems would be an advantage. Programs are developed in COBOL and ASSEMBLER and, although CICS is used, training will be provided where necessary.

In addition to the security of a successful organisation, other benefits include pension scheme, annual salary reviews, flexitime and sports and social facilities. To find out more, ring Myriad on 01-353 0981 quoting reference RS/2602.

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BERKSHIRE **£7,000-£11,500**

Our client is seeking additional systems and programming personnel to join and enhance their development teams working on a full range of new systems covering marketing, financial and production applications.

The installation uses IBM hardware with database and on-line systems. Experience of a similar environment will be advantageous although in some positions this is not imperative.

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Simon Container Machinery Limited is a member company of the Simon Engineering Group and is engaged in the design and manufacture of machinery for use throughout the world in the production of corrugated board and its conversion to printed carton boxes.

Simon have developed computer run centralised systems for these machines. The number of installations is increasing rapidly. We are looking for an engineer of either sex with experience in installation and servicing of such electronic control equipment in industrial applications.

A combination of programming and hardware knowledge plus some tough encounters with industrial environmental realities will be needed by the successful applicant. Experience in working in microprocessor techniques will be useful but not essential.

Extensive foreign travel will be involved. Other conditions of employment include a good Pension Scheme, Life Insurance Cover and other benefits commensurate with a large group of companies.

If this opportunity is of interest to you, please write to:

P. Taylor, Personnel Manager, Simon Container Machinery Limited, P.O. Box 31, Stockport, Cheshire SK3 0RT.

(4602)

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Kongsberg, one of Norway's leading and most successful engineering companies, is expanding further into the Computer Aided Design and Manufacture systems with its CDM 300 CAD/CAM system based upon the AD 2000 software.

The CAD/CAM Technical Sales Support engineer will be responsible to the UK Sales Manager and will be involved in PRE/POST Sales Support.

This will include:
- Demonstrations
- Bench Marks
- Presentations
- Advising customers on CAD/CAM
- Assisting Sales Engineers in proposals.

Salary is negotiable, depending on experience. The package includes free BUPA and life assurance cover, assistance with relocation if appropriate. Excellent career prospects within the organisations.

Please contact Sheila Cooke on
Maidenhead (0628) 20207
for further details

KONGSBERG DATA SYSTEMS
St. Peter's Road
Maidenhead
Berks.

(4637)

IBM SYSTEM 34

THE COMPANY

SHIPLEY EUROPE LIMITED is the controlling Company of the European Group of Shipley Companies, which manufactures and supplies specialised chemical processes to the printed circuits, Micro-Electronics, metal finishing and plating on plastics industries.

THE INSTALLATION

Our recently completed premises are the base for our total European Computer Applications. The Mainframe is an IBM SYSTEM 34, which is supported by IBM 3741 key to Diskette equipment at our sales offices throughout Europe.

THE OPPORTUNITY

The successful applicant will play a major role in achieving the objectives of the Computer Dept., which will include:
- Maintenance and development of European Applications and Systems.
- Design and Programming.
- The redesign of existing applications where necessary.

THE PERSON

Will be able to demonstrate a successful and wide personal experience in design and programming in R.P.G.11 (3 years' commercial/industrial applications considered the minimum). Will have a mature attitude with the ability to formulate and present his/her ideas at all levels.

Applications (in strict confidence) should include a detailed curriculum vitae and be addressed to:

The Personnel Manager
SHIPLEY EUROPE LIMITED
Harald Way, Coventry CV3 2RQ
Tel. Coventry 457203

(4601)

Move across into Network Management

Operations Supervisor — *up to £10,500*
Deputy Operations Supervisor — *up to £9,500*

Based Greenford, Middlesex

We are responsible for the UK manufacture of Glaxo Pharmaceuticals and their sale in this country.

This is a unique opportunity to move into a new era of operational network management involving extensive operation of distributed systems and distributed databases in a leading-edge technical environment.

The Company operates a large and expanding network of Hewlett-Packard HP 3000 mini-computers involving all Company locations. The centre of the network is at the Company Headquarters at Greenford where there is a cluster of HP 3000's together with I.C.L. mainframes supporting both on-line and batch operations. Extensive use is made of the IMAGE database software to maintain both central and remote databases.

To control this operating network we wish to appoint two high calibre supervisors to undertake network control and supervisory tasks. The positions offered are Operations Supervisor and Deputy Operations Supervisor. These Supervisors will undertake the responsibility for computer room Operations on all machines, scheduling, operator training and operational efficiency. Alternate weeks on day and evening shift working will be required.

Applicants should preferably be of graduate standard and whilst previous supervisory experience in a large on-line environment is essential this may have been gained in a technical support, systems development or computer operations capacity. The essential requirements are in-depth knowledge and experience of large on-line systems using communications and database software, proven man-management skills, and an innovative approach to network operations. Successful applicants who match the above qualifications and who also bring a high degree of personal commitment and a readiness to accept substantial responsibility can look forward to an interesting and secure future.

Attractive conditions of employment include profit sharing scheme, non-contributory pension scheme, a subsidised cafeteria and excellent sports and social facilities.

Please write for an application form to Miss V. A. Waters, Senior Personnel Officer, Glaxo Operations UK Ltd., Greenford Road, Greenford, Middx. or call 01-422 3434, ext. 340, quoting ref: FY/162.

GO
GLAXO OPERATIONS

(4628)

DISTRIBUTED SYSTEMS LIMITED

RECRUITMENT DIVISION

SALES AND MARKETING PERSONNEL

SYSTEMS

DSL, a rapidly expanding and highly profitable software/systems house, has a vacancy for a SALES EXECUTIVE, IBM (GSD or PDP) or DEC experience particularly relevant.

Ref. 81/32

RECRUITMENT

DSL also needs an experienced data processing professional who enjoys selling and interviewing people to consolidate and develop the permanent and contract staff placement side of the business. Previous recruitment experience advantageous but not essential.

Ref. 81/33

For both these positions, target earnings will be £20,000, plus car, and with equity participation for performance above target.

Please contact JOHN CLAPPERTON at DSL during office hours or on Caterham 46056 during the evening.

D S L

Licensed in accordance with Employment Agencies Act 1973 SE(B) 1559

70 Borough High Street, London SE1 1XF
Tel: 01-403 3456 & 1568 24-Hour Answerphone

(4597)

Computer Field Engineers, Test Engineers and Repair Technicians

MAKE THE MOST OF YOUR SKILLS AND JOIN SYSTEM INDUSTRIES!
FIND OUT MORE AT OUR INFORMAL EVENING INTERVIEWS TO BE HELD AT THE HOLIDAY INN, HEATHROW FROM MARCH 10-12

System Industries is one of the leading independent suppliers of minicomputer disk systems. We are a California-based public corporation with European headquarters in Woking, Surrey, and offices and [illegible] throughout Europe.

As a direct result of our very fast growth, we are now recruiting extra staff to meet the support demands of our ever expanding customer base. We need:

- FIELD ENGINEERS to be responsible for installing and servicing our products throughout the whole of the UK with some occasional European travel. At least two years' experience in the maintenance of DEC or DG minicomputers with experience on Disk, Tape and Memory Sub-systems a distinct advantage.
- TEST TECHNICIANS to be responsible for final testing of computer disk systems at our newly created testing facilities. Experience on exchangeable or fixed media high capacity disk drives preferable.
- REPAIR TECHNICIANS who will have gained a good grounding in digital and analogue techniques. Knowledge of high capacity disk drives preferable.

The company, an equal opportunity employer, offers an excellent remuneration package with extensive fringe benefits including profit related bonus plan, stock purchase plan, contributory pension plan with free life, accident, BUPA and sick pay insurance, four weeks annual holiday entitlement with three months paid sabatical leave in the seventh year and for all Field Engineers, a company car will be provided.

For an appointment please ring
Norma Johnson on
Woking (048 62) 5077.

System Industries

System Industries (Europe) System House, Guildford Road, Woking, Surrey GU22 7QQ

Programmer/Analyst

c.£8000 Iver, Bucks

We need a Programmer/Analyst to provide support to our Data Processing Department at our Headquarters in Iver, Bucks.

You will be able to work independently with different levels of management and staff and will have a user orientated approach to problems. Other qualities sought are: several years D.P. experience, preferably in a commercial/distribution environment; at least two years cobol programming experience, ideally on a Wang VS; the ability to train and supervise a small team of trainee programmers; some systems analysis experience would also be an advantage.

The career prospects are excellent if you have the ambition, ability and drive to succeed. For further information, do not hesitate to contact:

Mr Peter Forster, Personnel Manager, Pioneer High Fidelity (GB) Ltd., Pioneer House, The Ridgeway, Iver, Bucks.
Telephone: Iver (0753) 652222.

PIONEER

DATA BASE OPPORTUNITY

The North of Scotland Hydro-Electric Board are currently developing a large data-base for Premise + Customer Information to support all Associated Accounting and Engineering Systems. IDMS data base Software is being used and will operate on our dual ICL 2960 Computers in Aberdeen.

For this interesting and demanding project, additional staff with experience in design or implementation of CODASYL type data bases are required, familiarity with ICL VME/B operating environment and terminal application would be additional advantages.

Attractive conditions including a salary in the range of £7,200 - £9,200, inflation related Superannuation and assistance with relocation will be offered.

For further information telephone KEN HUTCHEON, 0224 692671, or send personal and career details to:

COMPUTER SERVICE MANAGER
NORTH SCOTLAND HYDRO-ELECTRIC BOARD
COMPUTING AND ACCOUNTING CENTRE
200 ASHGROVE ROAD WEST, ABERDEEN

IBM GSD SYSTEM RPG II
LONDON - MANCHESTER

PROGRAMMERS
ANALYSTS
PROJECT LEADERS

Altergo Business System Limited has vacancies for Programmers, Analysts and Project Leaders to work on its expanding IBM System/3/34/38 and Series 1 business throughout the U.K. and Europe.

These are long-term career positions which offer responsibility, high financial rewards and the opportunity to extend your skills and experience over a wide variety of applications and systems in the commercial and industrial fields.

We are particularly looking for people with enthusiasm, ambition and, above all, a professional outlook. We offer a dynamic organisation which recognises individual achievement. The rewards are a generous bonus scheme, six monthly salary reviews, excellent fringe benefits and an opportunity for rapid growth within the company.

PROGRAMMERS/ANALYSTS up to £10K plus benefits.
Applicants should have at least four years' experience with RPG II. Knowledge of small IBM machines, especially the System/34 would be a distinct advantage.

PROJECT LEADERS. Negotiable.
Applicants should have a minimum of 6 years' experience in the small business environment and ideally have been responsible for the design and installation of complete systems on IBM equipment.

If you feel that your potential can be realised through the challenge of working within an innovative and stimulating environment with secure prospects for future growth and career development, please telephone Barry Whitesmen or Ruth Berger.

Barry Whitesmen
ALTERGO BUSINESS SYSTEMS LIMITED
113 Great Russell Street
London WC1B 3NQ
Tel. 01-631 1666

Ruth Berger
ALTERGO BUSINESS SYSTEMS LIMITED
Orbits House, Albert Street
Eccles, Manchester M30 OWL
Tel. 061-707 4399

[illegible]

altergo

CRUSADER
INSURANCE COMPANY LIMITED

OPPORTUNITIES AT CRUSADER

Crusader Insurance Company Limited currently have vacancies in their Data Processing department for experienced personnel. A wide variety of computer systems are controlled by a relatively small team of analysts and programmers, so that each individual can gain a much broader view than in many larger data processing departments.

The company's ICL 2956/10 computer configuration runs under DME/3 but a gradual transition to VME/K will be made. New systems will make use of IDMS and existing systems will be redeveloped to take advantage of new technologies. Our immediate requirements are for:

SYSTEMS ANALYST to £8,500

This position involves systems analysis, design and implementation using ICL 1900 or 2900 series of computers for insurance applications. Candidates should have experience of systems analysis and design, and should be aged at least 24 years.

APPLICATIONS PROGRAMMER to £7,500

Programming using COBOL for insurance applications. A minimum of two years' programming experience with COBOL on ICL 1900/2900 series is essential, with a knowledge of PLAN and/or MAXIMOP an advantage. Candidates should have a good academic background (including at least two GCE A Level passes) and be aged at least 24 years.

THE BENEFITS

SALARIES ARE DUE FOR REVIEW AGAIN ON 1st JULY 1981

In addition to providing a pleasant working environment at Reigate in park-like surroundings, a full range of fringe benefits is available as follows:-
- Annual Bonus
- Free Group Life Assurance Benefits
- Contributory Pension Scheme (after one years service)
- Staff House Purchase Scheme (normally after one year, but for those applicants who already have a mortgage, a subsidy will be offered on commencement).
- Relocation Assistance.
- Free Luncheon Facilities
- Active Sports and Social Club
- Flexible Working Hours.

Please telephone or write for an application form, to:
Mr. A. Williamson, Personnel Manager, Crusader Insurance Company Limited, Reigate, Surrey RH2 8BL. Telephone: Reigate (07372) 42424.

PLYMOUTH POLYTECHNIC

FACULTY OF TECHNOLOGY
DEPARTMENT OF MATHEMATICS, STATISTICS AND COMPUTING

LECTURER II/ SENIOR LECTURER COMPUTING/ INFORMATION SCIENCE

Applications are invited for the above post created to support expanding research and teaching commitment in computer studies at the Polytechnic.

The successful candidate should further the involvement of the department in Informatics. Applications welcomed in particular from candidates qualified in information science or in computer science with a strong interest in non-numeric applications of computers. The successful candidate would be expected to contribute to the research activity of the department.

Salary:
Lecturer II £6,012-£9,702
Senior Lecturer £8,952-£11,295

Application forms to be returned by Friday, 20th March, 1981 can be obtained with further particulars from the Personnel Officer, Plymouth Polytechnic, Drake Circus, Plymouth PL4 8AA.

(4594)

D.P. Staff

Minerva Computer Personnel for regular contract or permanent computer vacancies, giving you the chance to earn what you're really worth.

Contact Maureen Ingle on 061-236 7036, or write to her at 81 Fountain Street, Manchester.

(4589)

Minerva Computer Personnel

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datascene

OPERATORS

IBM MVS OPERATORS — **WORCESTER** — **c £8,000**
Very large industrial user has a number of operator vacancies at their computer centre for MVS JES 2 people. Minimum of 18 months' experience for these shift only positions.
G.5084

IBM OS VS1 OPERATORS — **LONDON** — **c £6,500**
Market leader has opening for OS/VS1 ops for large IBM installation. 1 year's experience minimum for this shift only post. Very good company package includes mortgage, restaurant, etc.
G.5056

IBM MVS OPERATOR — **LONDON** — **c £6,000**
Very large transport company require ops with 1 year minimum experience of MVS JES 2. Good opportunities for promotion which include possible progression to programming.
G.5055

IBM OS VS1 SNR OPERATOR — **DORSET** — **c £6,500**
Large financial company require operational staff with a minimum of 2 years' experience of using MVS and CICS. Very good company package includes Mortgage, Life Assurance, Restaurant, Sports and Social, etc.
G.5085

ICL GII/DME OPERATOR — **LONDON** — **c £5,500**
Large machine user has a requirement for an experienced operator with a minimum experience of 1 year on ICL 2956. Very good prospects for promotion and training facilities are excellent.
G.4791

IBM DOS/VSE OPERATOR — **LONDON** — **c £5,800**
Well-known company require an operator with 12 months' experience of DOS/VSE. CICS, VM would be an advantage. 2 shifts operate at this installation.
G.5086

IBM OS VS2 OPERATOR — **SURREY** — **c £6,000**
Market leader require experienced operator to work in one of the company centres with T.P. links throughout the U.K. At least 2 years' experience with sound knowledge of DS/VS2, MVS experience of T.P. network. Scope for promotion and staff shopping facilities.
G.4947

IBM JCL TECH. — **LONDON** — **c £8,500**
Leader in its field require person with minimum of 2 years' sound experience of OS JCL + UTILITIES, to work in its computer centre. Very good company benefits includes mortgage, restaurant, etc.
G.5057

IBM OPS ANALYST (DOS) — **HERTS** — **c £7,000**
A large British Company require an analyst with a sound knowledge of DOS/VS to work days only. A good overall knowledge of IBM op system would also be an advantage. Company discount facilities.
G.5082

ICL SHIFT LEADER — **ESSEX** — **c £7,000**
Large manufacturer requires person with ICL 2905 under DME for days only. A very good background of ICL is required, previous shift supervision a must, as promotion prospects are excellent.
G.8022

(4840)

Datascene International Limited, [illegible] House, [illegible] Regent Street, London W1R 7FB. Telex: [illegible]

datascene 01-439 7871
24 hour answer phone

SOUTH AFRICA

Contract or Permanent

Our client, The Gold Division Information Service of ANGLO AMERICAN is looking for:

PROJECT LEADERS, SYSTEMS ANALYSTS, ANALYST/PROGRAMMERS and PROGRAMMERS

with a minimum of four years data processing experience to work in one of the most sophisticated computer installations in South Africa. Situated in the country, they have IBM 370/158 and 3032 main frames (a 3033 is currently being installed), a wide range of mini computers at remote sites and about 400 terminals. They use the latest software tools including IMS database and data communications. Education and training is given top priority and the true data processing professional need not necessarily have a background with IBM equipment. IBM experience is however, required for the following further vacancies: **TRAINING MANAGER ● DATABASE CONTROLLERS, DESIGNERS AND SUPPORT STAFF ● SOFTWARE PROGRAMMERS and SHIFTLEADERS (MIN 5 YEARS EXPERIENCE).**

South Africa has much to offer – a booming economy, sunshine, low taxation and high living standards. The employment package offered by Anglo American is generous by South African standards and includes ● *Top salaries plus a car for senior positions* ● *Annual bonuses for permanent staff and end of contract bonuses* ● *Housing at 5% of the basic salary* ● *Allowances for water and electricity* ● *Four or five weeks' leave per annum* ● *Generous relocation assistance* ● *Superb sports and social facilities.*

This is an ideal opportunity to combine career progression, experience in a new country and a real possibility of saving.

Final interviews will be held in London at the end of March. For further information please contact Anne Breuer on (01) 434 2698/9 or if you prefer write to her at:

Prescot Computers Ltd
43 Conduit Street, London W1.

(4611)

From nil to No. 1 in Data Entry in just 10 years is proof enough – Redifon means business. Now, with the launch of the *R1800 Series and Viewdata Plus*, Redifon certainly does mean BUSINESS. Or, to be exact, is out to revolutionise the electronic office market.

Incorporating a new fast processor, this remarkable, 'user friendly' integrated Office System provides everything conventional systems can. *Plus* unique real-time interactive viewdata. *Plus* IBM 3270 pass through. *Plus* handprint terminals. *Plus* text processing. *Plus* a host of exciting new products for 1981.

The right solution? We're convinced. So are several major companies who have systems already installed and working. Gaining a market first has put us in a very strong position. Consolidating it must be the next priority – and maintaining our impeccable levels of customer service will be crucially important. Which is where you come in.

In service of the Revolution

Customer Engineers

Central & S. London N. London & Luton

If you have 2 + years' experience of computer equipment we can offer you full product training at our Crawley headquarters, then total responsibility for your own area.

Pay and conditions are what you would expect of a large, dynamic young company – attractive salaries commensurate with experience *plus* overtime, *plus* car, *plus* realistic expenses.

Your skills could be exactly those we need. Contact John Currey, Manager of our South-East Branch on 01-942 8900 Ext 248. Alternatively, write for an application form to: The Personnel Manager,

REDIFON COMPUTERS LIMITED
Kelvin Way, Crawley, West Sussex RH10 2LY.
A Member of the Rediffusion Group of Companies.

(4632)

Data Processing Manager

Systems and Programming c.£9,500

Backed by one of the world's largest engineering organisations, our client is currently making sustained investment to rationalise and develop its manufacturing base. A feature of this programme involves the strengthening of the management support functions and it is for this reason that our client now requires an experienced Systems Analyst to head a small development team in the North-West of England.

From a background in COBOL programming, you will work in close liaison with the parent company's modern hardware environment IBM 4331 DOS/VSE operating system. Your brief will cover the effective functioning of the unit to rapidly extend computer utilisation in accounting, order processing, stock control and purchasing functions. Understandably, this will necessitate detailed involvement with user computer centre and parent company to introduce existing packages or develop specifications for new programmes.

If you have a good educational background and application experience in the above hardware within a manufacturing environment, this is certainly a good opportunity to take a significant step forward in your career with all the accompanying benefits this brings.

Please write enclosing full career details, naming companies to whom we should not forward your application, quoting ref. RPS 2, to Ian Lovatt, Account Executive, Royds Personnel Services, Royds House, Mandeville Place, London W1M 6AE.

RPS

Royds Personnel Services London Limited

INTERNATIONAL SOFTWARE ANALYST

Must be experienced in assembler language and mini or micro systems. A knowledge of European telephone systems is desirable. Join a development team in the US for 6 to 8 months then return to London where you will provide product support to our marketing staff and technical liaison with the US team. Position directly involves the design of new micro-based products aimed at telephone cost management systems. Excellent salary, rapidly growing US company and outstanding job challenge.

Please send CV to: **Sykes Datatronics Limited**
Regal House, London Road
Twickenham, Middlesex
Telephone: 01-891 4796

EUROPEAN MANAGER

For International Distributor Network

US manufacturer of floppy disc systems with UK headquarters needs experienced Marketing/Sales Manager – background in mini/computers, peripherals or communications equipment. Applicant needs 3/5 years' sales management background, some outside UK if possible, European language a plus. He will take charge of 10/12 distributors to support marketing, increase sales and coordinate their efforts. Applicant needs good technical background to enable him to support distributors. Some initial training in USA and UK, extensive travel, US company, good basic salary plus incentive bonus based on performance each year.

Please send CV to: **Sykes Datatronics Limited**
Regal House, London Road
Twickenham, Middlesex.
Telephone: 01-891 4796
891 4796

(4617)

SENIOR PROJECT MANAGER/LEADER AND SYSTEMS ANALYSTS

required with extensive experience in the design and installation of real-time direct data entry business minicomputer systems using high level languages.

Previous employment of suitable applicants should have been mainly with a supplier of business systems.

Minnie are computer system suppliers with installations in City financial establishments and general commercial companies and have offices in E.C.1 and E.C.2. Salary range £7,500 to £15,000.

Telephone or write to

Miss K. Marsden
MINNIE BUSINESS SYSTEMS LIMITED
21 Dingley Road, London E.C.1
01-251 [illegible]

SOUTH-WEST UNIVERSITIES REGIONAL COMPUTER CENTRE
University of Bath

VME/B SYSTEMS PROGRAMMER

Applications are invited for the post of Systems Programmer in the Operating Systems team at SWURCC. SWURCC is situated in the congenial surroundings of Bath University campus and is the regional computer centre for the South-West Universities Computer Network.

Operating Systems is a small team responsible for maintaining and developing the VME/B operating system on a powerful ICL 2980. Development projects often involve programming in S3 (an Algol 68-like language) and immediate developments include implementing the latest version of VME/B (6.10), modification of a locally designed high-level scheduler and improvements in communications software.

This is a challenging post requiring a self-motivating quick-learning individual. Experience of VME/B (or another large operating system) and of designing and developing systems software would be an advantage. Training will be given where necessary.

Salary in the range £5,505 - £8,595 (under review). Application forms and further particulars may be obtained from the Personnel Office, University of Bath, BA2 7AY (0225-61244), quoting reference [illegible]. Closing date [illegible] March, 1981.

IMS DATABASE DESIGNER

AMSTERDAM
Up to £ 550,- p.w

We require an experienced IMS analist/Data base designer with an minimum of 3 years current IMS experience. The primary function is to work within a team of analysts in the DBA group to evaluate and check Data base designs and modifications

IMS PROGRAMMER

AMSTERDAM
Up to £ 450,- p.w.

This project require an experienced programmer with an indepth knowledge of PL/1 as well as IMS DB/DC. He should also have had some experience with ASSEMBLER as the position is within an IMS DBA group as technical programmer.

MVS SYSTEMS PROGRAMMER

HAMBURG
Up to £ 500,- p.w.

The main task is to be responsible for the maintenance support of a stable MVS system. It is also envisaged that part of the time will be involved in evaluating and installing new utility software packages.

MVS SYSTEMS PROGRAMMER

AMSTERDAM
Up to £ 500,- p.w

To be part of a team of systems programmers involved in a conversion from OS/VS1 to MVS. An indepth knowledge is required of ACF/VTAM, VSPC and if possible VSAM.

IMS SYSTEMS PROGRAMMER

AMSTERDAM
Up to £ 550,- p.w.

We are seeking an experienced IMS systems programmer with at least 2 years of current experience including release 1.1.6. The task will be to maintain the current system (which is in on MVS environment) as well as be involved in preparing for the installation of the next release.

DOS/VSE SYSTEMS PROGRAMMER

UTRECHT
Up to £ 450,- p.w.

To assist in the conversion from DOS/VS to DOS/VSE as well as to be responsible for CICS support internally.

These projects are currently available in Holland and independent consultants who are interested in these or other future projects are requested to telephone, reverse charges, during normal office hours, to Mr. S. Haltes or to send a career resumé.

share

P.C. Hooftstraat 23
1071 BL Amsterdam
HOLLAND
Tel. 010 31 20 79 60 11

(4636)

holland

JBA

Consultants (RSTS/E)

Zurich, Luxembourg, Frankfurt c. £16,000 + Exps.

Our client, a Swiss Management Consultancy, with offices in the above locations wish to recruit professionals to strengthen their current project teams involved in the development and installation of banking systems throughout Europe.

Ideal experience would be 3 years Basic + or Basic + 2 in a RSTS/E environment as a senior member of a development team.

This being a permanent overseas appointment, candidates must be self motivated, adaptable and be prepared to travel between project locations when the need arises.

Contact: Brian Postles

Field Service Engineers

Saudi Arabia up to £15,000 tax free plus allowances.

Our Client, a well established commercial organisation with many diverse interests, wishes to appoint two Customer Engineers to join a newly formed support group based in Jeddah.

Candidates must have at least two years experience of serving DEC processors and peripherals. A recognised qualification and/or knowledge of software would be an advantage.

A very attractive package on permanent married status. **Contact: Jim Baker**

Sales Consultants

Essex/Birmingham c. £13K + car

A leading, nationwide bureau organisation, are seeking experienced Sales Executives to contribute significantly to current expansion plans and develop their own customer base. You will be responsible for selling the bureaux wide range of data processing services, including application packages, terminal enquiry facilities and bespoke systems.

Main preferred qualities sought, are a sound understanding of business problems a proven sales record in a related field, and ideally, a background in accountancy or business systems. Targets are very realistic, and achievable, for salesmen with energy, initiative and the enthusiasm to succeed. **Contact: Brian Postles**

Communications Support

London £10,000

The Computer Services Department of this well known organisation, are seeking senior/junior technical expertise in the communications field.

It is essential to have good experience of IBM 3270, SDLC, HDLC, X25 or Package switching.

For the more senior position, a background including communication system design is of utmost importance. A degree or equivalent qualification in Engineering or related subjects is mandatory for both positions. Good prospects and training will be offered.

Contact: Janet Chilvers

Consultant

Quality Assurance to £10,000

Our client, a very successful consultancy has grown steadily in the extent and complexity of its operations. They are currently seeking a Software Engineer with the experience and ability to make an immediate contribution in a demanding team environment.

The QA team works in close co-operation with Project Leaders and therefore have an opportunity to acquire a unique overview of the company's activities.

The appointee will play a significant role in the audit and review of technically advanced applications with special reference to Defence projects.

Applicants will be able to demonstrate a successful technical background which will include an appreciation of electronic engineering and QA procedures.

Contact: Margaret Stevens

Programmers

City to £10,000

We have been retained by a British Merchant Bank to recruit two experienced COBOL programmers to supplement their existing teams.

Current Hardware is HP 3000 using IMAGE, ASK and VIEW Software, an experience in these fields would be an advantage. Special preference will be given to applicants with banking background although insurance would be an acceptable alternative.

Normal banking benefits apply. **Contact: David Hendry**

Mini Systems Analyst/Programmers

London to £8,500

Our client, **Scicon Consultancy International** requires Analyst/Programmers to join its **ENERGY SYSTEMS** division: helping to design and develop systems to manage the exploration, supply and use of Energy resources.

Applicants must be self-motivated and should have at least 18 months experience of high-level programming (e.g. COBOL, FORTRAN, PASCAL) on mini-computers. On-line database expertise would be an advantage.

Successful candidates can expect to work on a variety of challenging projects in a demanding environment, the prospect of rapid promotion to project leading and consultancy roles. **Contact: Margaret Stevens**

Analyst/Programmer

London c.£8,500

A well established software house and systems consultancy, are expanding their London office and so have a requirement for analyst/programmers to develop and support turnkey projects based on the TI990 range of computers.

Candidates must have at least 3 yrs. experience in d.p. preferably being gained in a mini environment, coupled with a sound knowledge of COBOL. An understanding, if not a working knowledge of systems in a financial area, would be an added advantage.

Training in the company's products will be given. It is expected that the candidate be self-motivated as this is a responsible position. **Contact: David Hendry**

JAMES BAKER ASSOCIATES,
International Personnel Consultants,
32 Savile Row, London W1.
Tel: 01-439 9311.

Merseyside Police Computer Unit

A newly created police computer unit serving one of Britain's largest police forces is currently preparing for the implementation of one of the most ambitious and prestigious computer based police systems in Europe. The first phase, due to go live early in 1982, is a real time continuous operation Command and Control System. The hardware consists of a dual Burroughs B5900 large systems configuration with an extensive communications network, and uses database software. The system will be installed in a new purpose built Police Headquarters in Liverpool City Centre.

The successful candidates for both posts will have had experience of two or more of the following:-

Burroughs Large Systems	Database Software
ALGOL and/or COBOL	Real Time Systems

Senior Systems Analyst

(Technical Support)

(£8379 - £9861 p.a.)

The person appointed to this post will have prime responsibility for the Burroughs standard software and middleware on the system. The successful candidate will be expected to maintain such software; evaluate new software and new releases of software, advise on the relevance to the Force, and, where necessary, ensure that implementation is effected. This system has particularly sophisticated recovery and security facilities and these will be the responsibility of the Technical Support Analyst, who will also be expected to advise on methods of interfacing the system with the Crime and Criminal Information System, on which work has already started.

Senior Systems Analyst

(Crime and Criminal Information)

(£8379 - £9861 p.a.)

The person appointed to this particularly challenging post will work on the design of the second phase - a new comprehensive Crime and Criminal Information System, the first part of which is scheduled to go live in 1984. The detailed user requirement is almost complete and further expertise is now required to take responsibility for the production of the detailed specification, evaluation of proposals for implementation, and to supervise further developments in this field.

Re-location expenses of up to £1,250 will be paid in appropriate circumstances.

For further information telephone
Ian Chambers (Computer Manager)
on 051-709-6010 extension 8589

Application forms and further particulars available from
The Chief Constable, (P.A.A.),
Merseyside Police, PO Box 59, LIVERPOOL L69 1JD
to whom they should be returned by 13th March, 1981.

BRITISH COUNCIL FOR AID TO REFUGEES

require a

COMPUTER OPERATOR

to operate a Commodore PET using information retrieval system. The successful applicant will also be expected, in conjunction with Consultants, to set up procedures covering all aspects of refugee data, expanding computer usage and establishing security of records. Some assistance with statistics and general office work may be required.

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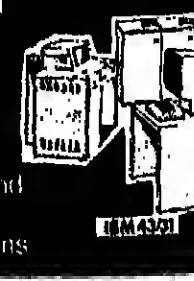

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Office of the future is on its way – but salesmen of the future are needed now

by Alan Simpson

SALESMEN are increasingly regarded as being in the front line of the company attack. They are also the last line of company defence, particularly when personnel cutbacks are taking place.

The recognition that selling is the most important part of any business activity has only recently been accepted in the UK. That computing has had a large part in changing selling attitudes can be traced to the large number of US companies operating in the European marketplace.

However, getting into computing, at least for those on the outside, almost at any level, seems as difficult as microchip technology or satellite communication channels.

But with a current vacancy level of 50,000 in data processing, and increasing daily, the industry offers much recruitment scope, not least to salesmen. Many computer organisations, particularly those involved in selling software packages and the flourishing PCM/OEM organisations, are complaining to anyone who will listen that their European growth and development plans are being hampered by lack of sales recruits.

Those not closely involved in the industry might be excused from believing that most growth is taking place in micro and word processing units. This is not the case. As the recently established recruitment company, Michael Drayton reports: The demand for computer salesmen extends from selling small-scale floppy discs to large-scale computer systems, plus all levels in between. Like several other recruitment companies, Michael Drayton believes that although the sales and marketing job market held steady last year, current trends indicate that normal growth patterns will be resumed later this year.

> **A successful salesman should not have to wait long for internal recognition or for a rival company to come knocking with promising opportunities. There is certainly no shortage of computing companies starting up operations in Europe.**

This statement, however, could well be overtaken by events. Already there appear to be signs of a considerable pick-up in demand. The recession, far from harming computer sales, often serves as a bonus factor. Increasingly, companies are having to purchase or enhance computer systems as a method of reducing clerical costs, improving customer services and supplying up-to-date management information.

There is, unfortunately, no open door policy into computer selling. For a start, there would be just too many doors. Selling can involve software: computer software packages are now being actively promoted and a large number of US companies are setting up selling organisations in Europe.

Hardware can range from a small-scale business or personal computer, a minicomputer system or a full-scale mainframe equipment. In between are all manner of peripherals such as printers and data preparation equipment as well as terminals, computer room environment systems and data communication products.

Earlier computing generations featured sales teams largely recruited from the universities. Graduates recognised the challenge and potential offered by the computer industry and climbed aboard the IBM, Burroughs, Honeywell or NCR bandwagons. Other salesmen "graduated" into full-scale computing via adding or accounting machine organisations. Some user personnel at the same time saw the sales opportunities (and rewards) and moved over into selling, as did many systems analysts and programmers. Even some service engineers crossed the lines to selling.

Steadily, the graduate intake drifted into various levels of consultancy and user or sales management. As a result, many senior positions in computing are now held by ex-salesmen.

A major entry route into computing for salesmen is by having a reasonable amount of related background experience. A sales job in telecommunications or perhaps engineering graphics or design, could pave the way to that initial computing foothold.

Having got into computing sales, the only direction should be up. Good news spreads fast, and a successful salesman should not have to wait long for internal recognition or for a rival company to come knocking with promising opportunities. There is certainly no shortage of computing companies starting up operations in Europe, each one seeking experienced and professional salesmen.

In the past, a sales career in computing involved a substantial measure of pioneering and make-do-and-mending. Requirements today call for a more professional approach. An understanding of business methods embracing manufacturing, commerce and finance, is essential. Computing is now seen not so much as a means of processing large amounts of data, but more as a total service and involvement in company affairs.

> **Not all salesmen are whiter than white. Some are a deeper shade of grey who pack in their work cases a large quantity of wool which will hopefully cover customers' eyes.**

The salesman must therefore be self-confident, capable of communicating with all levels of company management and personnel, with an ability to diagnose problems and present cost-effective solutions.

Computing itself being largely a free enterprise concern, the salesman must show similar degrees of effort, achievement and self-motivation. Other major attributes must include enthusiasm, intelligence, plus a basic understanding of technology and what it can offer business.

This understanding can certainly be assisted by a degree in technology, business management or a related qualification. However, the ability to analyse customer requirements or to develop a new marketing plan or product line, is by no means limited to graduates. Irrespective of background, education or training, the successful salesman is most often the one with the ability to close a sale or to recognise a lost cause at an early stage.

As Alan Williams recently pointed out from the safety of the back pages of Computer Weekly, the failure to recruit new sales personnel is a direct factor in lost revenues and sales.

Indecision often plays an important part in sales recruitment. The sales manager is possibly uncertain whether he can justify additional sales recruits, and the salesman uncertain whether he should risk leaving his current company for ventures uncertain.

But not all salesmen are whiter than white. Some are a deeper shade of grey, who pack in their work cases a large quantity of wool which will hopefully cover customers' eyes. Bluffing (or perhaps baffling) the customer with super-hype jargon still takes place, particularly in the microcomputer software market. The Institute of Data Processing Management has now declared open hostilities against such activities and could attempt to draw up a code of good selling conduct.

Of the three main methods of job recruiting, advertising is probably the first to be considered. Positive factors include a pre-determined cost factor, a wide catchment net, and some related company promotion. Drawbacks are the amount of sifting required and the information the opposition may have gleaned from the advertisement.

The main benefit of using a recruitment agency is that of time-saving both in preparing advertising copy and subsequent selection procedures. In either case, firm job specifications are essential for all parties.

The third method, that of direct approach, is normally restricted to very senior appointments or selected individuals. Casual sales poaching encounters often take place at such industry gatherings as exhibitions and conferences.

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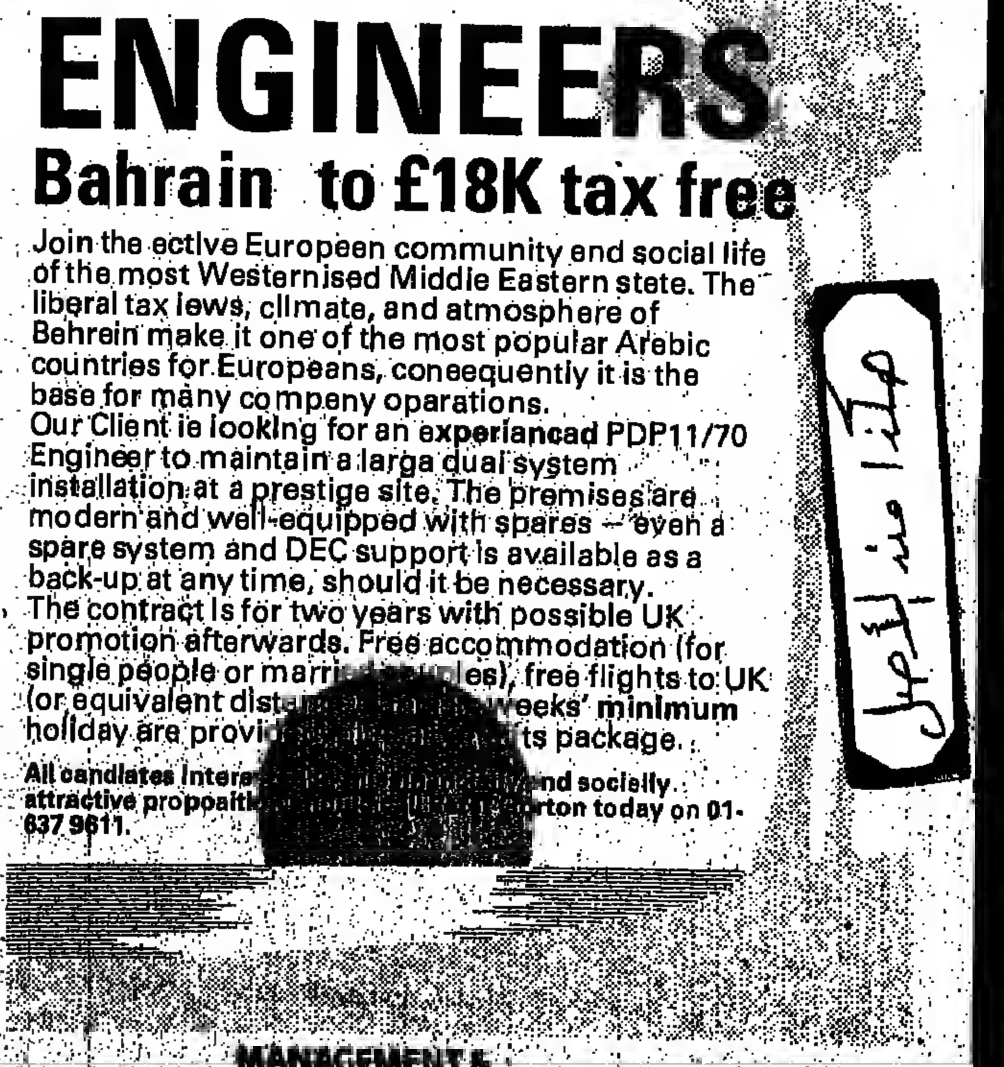

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CW9/1. Michael

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CW9/3. Tricia

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(4652)

Cheshire

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IBM Systems Engineers

W. Germany: Salary to £20K

On behalf of an internationally renowned supplier of DBMS and TP Software Products we are seeking several IBM-orientated Systems Engineers with extensive knowledge of some of the following products and operating systems: CICS, IMS, MVS, TSO, ENVIRON, TOTAL, IDMS or SHADOW. Technically, you must demonstrate 5 years' continuous exposure to the implementation and/or Support of Data-Base and Teleprocessing systems in a large or multiuser IBM or Amdahl installation. The company is offering superb permanent career positions in its new German office and offers higher than average salaries (even by Continental standards). There is a strong preference for those with a working knowledge of German. Ref. L/9/C

Real-Time Programmers

Central London: Salary to £9K

Additional Programmers are urgently required to join the Software development team of a small but expanding Systems House based in Central London. The company is currently engaged in the design, coding and testing of real-time software for U.K. and Overseas clients. Suitable applicants will have a degree in a numeric subject and at least two years' real-time programming experience in either FORTRAN, CORAL 66 or Assembler. If you have been exposed to mini computers, especially DEC's PDP range, HP 2100, Prime 500 or Honeywell Level 6, you will be of particular interest our clients. Ref. L/9/D

Mini/Micro Software

EEC: Pkg. to £16K

Programmers, Systems Designers and Project Leaders with in-depth experience of real-time systems are urgently required to join a number of project teams in Continental Europe. Of particular interest will be candidates with a strong background in developing software for Communications, or Process Control systems. Whilst all applicants will be expected to be fluent in Assembler, Fortran, Algol or derivative languages, particular hardware exposure is not a requirement. All positions are on a permanent basis with relocation expenses and assistance in obtaining accommodation among the benefits our clients provide. Ref. L/9/E

Message Switching

Home Counties: Salaries to £13K

Senior Programmer/Designers are urgently required by a leading supplier of data and office communications equipment whose rapid expansion has led to a number of vacancies being created in their Software Development Department. Candidates should offer 3/5 years' Assembler programming experience in communications and networking environments. Whilst there is a preference for candidates who have worked on PDP11 minicomputers or leading microprocessors, particular hardware experience is not of paramount importance. Ref. L/9/F

Software Support

W. Home Counties: Salary to £13K

A leading Total Systems Supplier requires additional Analyst/Programmers and Project Leaders to join either its Customer Support or Software Development teams. Suitable applicants will have good personal communication skills and the ability to identify and solve client problems. It is essential for all positions that you offer at least 12 months' experience of analysing commercial systems. Additionally, you should be fluent in Assembler, Basic + or COBOL and have recent exposure to mini- or micro-computers. Candidates who have actual or potential management abilities will of course be considered for the more Senior positions. Ref. L/9/G

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(4599)

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Excellent benefits apply.

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SALESMAN

Hertfordshire — c. £17,000+Car

A major organisation who are sole distributors of a leading mini/micro computer range are seeking a salesman for their range of products. It is essential that candidates for the position should have some experience within the computer or office equipment field.

The person appointed could expect a basic salary in the order of £6,500 depending on experience plus an initial guarantee. The commission package is designed to produce an income of £17,500 for £200,000 of business. There are excellent prospects for advancement to management level within the company.

Usual benefits apply.

Ref. ML4650

BUREAU SALESMAN

Middlesex — c. £11,000+ Commission & Car

Our clients, a large commercial Bureau are currently recruiting experienced sales people. Ideally you should have sales experience with a bureau or computer manufacturer, however applicants who have a proven track record in other spheres of activity ie. programmable calculators or mini computers will also be considered. The successful applicants will have a choice of dealing with standard packages or custom built systems. The territories to be allocated are in London and the Home Counties.

Excellent company benefits are offered.

Ref. ML4648

OPERATIONS

OPERATOR

Surrey — £6,000+

Our clients are seeking an operator with approx. 18 months OS/VS MVS experience together with a basic knowledge of teleprocessing applications. There is lots of scope for advancement and among the many attractive benefits offered are five weeks paid holiday.

Ref. BC4682

OPERATOR

Essex — c. £5,500

Our clients, a well known consumer organisation have recently installed their first IBM mainframe and are now seeking operators with approx. 1 year's experience of OS/VS1. The site operates a two-shift rota and offers excellent scope for promotion. A profit share scheme is also offered.

Ref. BC4824

OPERATOR

Essex — £4,500+

A large company in Essex require operators with at least one year's IBM experience. A two shift system is worked on IBM 4341 DOS VSE POWER.

Fringe benefits include free meals, non-contributory pension scheme, a mortgage reduction and sports complex.
Ref. HP4651

TRAINEE COMPUTER OPERATOR

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Ref. BC4683

OPERATIONS SUPERVISOR

Essex — c. £7,500

We have been asked to assist in the recruitment of an Operations Supervisor. Applicants for this position should have an in-depth knowledge of ICL 1900/2900 (EXEC) together with previous supervisory skills to join this busy installation.

Ref. ML4622

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To arrange an early interview (possibly evening or week-end), telephone Tony Watts on 01-907 3046 (direct line) next Monday, Tuesday or Wednesday, 2nd, 3rd, 4th March anytime between 9 a.m. and 8 p.m.

Alternatively write with full career details to Tony Watts, Personnel Manager, British Tissues Limited, Brent House, 214 Kenton Road, Harrow, Middx.

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Ideally you should be over 25 with at least 3 years' computer experience, to include either Systems Analysis or Programming knowledge. You should have the ability to advise clients on salary levels; job identification and specification; and advertising, thereby compiling a client profile for suitable applicants. Additionally, you must be able to assess people and to advise them on their career development.

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In addition to providing you with an excellent framework around which to build your future career, we offer excellent terms and conditions of employment and unrivalled job security.

If you feel that you are ready to take a big step forward in your career, contact our Advising Consultant, **IAN PAYNE**, on **021-236 3781** (24-hour answering service) or 0827 282430 (evenings and weekends).

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INTERVIEWS: LONDON AND MIDLANDS MARCH 9, 10, 11

Rosemary Saraflan, Vice President of CSD will be in the UK to interview Programmers and Analyst/Programmers with at least two years' experience in COBOL, BAL, PL/1 or MINICOMPUTERS. IMS or CICS would be of special interest and could command ADDITIONAL INCOME.

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If you enjoy Programming and want to extend your DP skills while you experience the States, call now to schedule your confidential appointment. Computer Systems International, our parent company in London, also requires several staff at all levels, excellent opportunities exist, including IBM training and the option of transfer to the States after one year in London.

Dawn Humphrey or Peter Hunter 01-836 6775

Computing Services Association

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(4525)

CROSSWORD

Solution to Prize Crossword No 13

1 M	A	2 G	I	3 C	A	4 L		5 U	N	6 D	R	7 E	S	8 S
O		U		O		Y		N		I		P		T
9 D	E	M	U	R		10 R	E	C	O	N	D	I	T	E
I		M		M		I		H		E		D		R
11 F	E	E	T	O	F	C	L	A	Y		12 T	E	R	N
Y		D		R				N		13 B		M		U
				14 A	S	15 T	I	G	M	A	T	I	S	M
16 A		17 M		N		R		E		N		C		S
18 S	H	O	R	T	H	A	N	D	E	D				
S		N		S		C				E		19 P		20 T
21 E	R	O	S		22 A	T	T	23 H	E	R	E	A	D	Y
S		C		24 P		A		I		I		R		R
25 S	A	L	O	O	N	B	A	R		26 L	A	S	S	O
O		E		L		L		E		L		E		N
27 R	E	S	T	O	R	E		28 D	I	O	C	E	S	E

WINNER of £10 in CW Crossword Competition No 13 is Vincent Grimley, information manager with Rolls-Royce in Derby. Cecil Marks, a founder member of the BCS who recently retired as director of systems training at the Civil Service College, and Mr W. Linton of North London, win £5 each.

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(4648)

NEXT WEEK
NORTHERN RECRUITMENT FEATURE

Advertisers are reminded that the next Computer Weekly Northern Recruitment Feature will be published on March 5 and will highlight career opportunities in the North.

Space reservations should be made as soon as possible to:

Owen Kelly – Manchester
061-872 4211
Julie Hannaford – London
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Copy Deadline: P.M. Friday before

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The terms offered are a basic salary of up to £10,000 p.a. for suitably qualified applicants, an overtime payment scheme, stand-by, the use of a company estate car, together with a comprehensive benefits package.

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(4523)

UNIVERSITY OF BRISTOL
DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

RESEARCH ASSISTANT

Applications are invited for a post of Research Assistant in connection with a contract sponsored by ENOC, concerned primarily with the application of numerical solution of partial differential equations to Cathodic Protection Systems. Although the work will be largely numerical it will be important to relate it to the physical problems and to parallel experimental investigations.

It is anticipated that the successful candidate will have a good Honours degree with appropriate experience. The post is tenable for up to three years and the salary will be within the range £4,795-£6,245 p.a. It may be possible to register for a higher degree, if appropriate.

Application should be made to Professor K. F. Bender from whom further details may be obtained at University Engineering Laboratories, University Walk, Bristol BS8 1TR.

(4685)

Software Engineer

Our Telemetry & Automation Section is responsible for the provision of remote control and monitoring systems throughout the IBA's network of television transmitting stations.

We now need a Software Engineer to assess user needs and software design for systems and equipment covering programme input, transmitting station control and monitoring. The work will also include arranging for the purchase of equipment and software, writing specialist programs and involvement in the installation and commissioning of equipment.

Applicants (male or female) should be qualified to degree level in electrical/electronic engineering or computer science. Several years experience in systems design and applications work in a hardware/software environment is essential. Travelling away from base is required, therefore, a current driving licence is necessary.

Sterling salary will be within the range £7,[illegible]-£9,[illegible] per annum according to experience. Re-location expenses will be paid, where appropriate.

IBA INDEPENDENT BROADCASTING AUTHORITY

Please write or telephone for an application form, quoting reference number CW/581cc to Glynis Powell, Personnel Officer, IBA, Crawley Court, Winchester, Hampshire, SO21 2QA. Telephone 822270.

GUIDE TO RECRUITMENT CONSULTANTS IN THE U.K

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Brantford International Limited, part of the Furness Withy Group, is one of the largest Freight Forwarding Operators in the U.K. and is expanding internationally.

The Company is introducing a new Hardware Installation at their Head Office at Barking, Essex based on the ICL ME 29 generation of equipment and is seeking a Senior Operator/DP Manager Designate to assist at the commencement of a new phase in the Company's operations. The successful candidate, probably 30 years plus, will have at least 12 months experience on ICL 2903/04 or similar equipment and will have proven supervisory experience. He/she will be expected to become totally involved in Systems Applications, in addition to the efficient day to day provision of batch/real time facilities, the selection and training of operational staff and liaising on the development and installation of peripheral equipment when desired.

Future prospects for the right applicant are extremely good and the importance of this position within the Company will be reflected in the salary and benefits offered.

Please telephone or write for an application form to Mr. R. Martin, Personnel Manager, Brantford International Limited, Regal House, East Street, Barking, Essex, IG11 8EY. Tel: 01-594 7181 ext. 367.

(4534)

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London & Midlands

Sales Manager

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For many senior salespeople the reality of advancement into sales management is "dead men's shoes." This is not so much an indictment of company attitudes towards personnel development as it is the scarcity of opportunity and competition for such jobs when they do occur. For many the only real career progress hope is getting in at the beginning of a new business operation and growing with it. This is such an opportunity.

Our client has identified a vertical market, developed a cost-effective realtime computer system, proved it in the field and now has an extremely attractive product which at present has no significant competition.

In order to exploit this situation, our client now wishes to appoint a SALES MANAGER to establish an operation which will initially consist of only himself, but will quickly develop into a sales and marketing team under his complete control. This is likely to appeal to Senior Salespeople with marketing flair and an outstanding record of sales success related to minicomputer systems who wish to advance into a management role.

The job opportunity is based in

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but management responsibility will embrace the entire United Kingdom.

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SALES BIT

Professional Credibility – 2

Manners makyth a successful salesman

LAST week I wrote about the need for salespeople to achieve professional credibility, and the extreme difficulty of persuading any potential customer to buy unless the right level of mutual trust and respect has been achieved. This week I would like to discuss some of the main factors that contribute towards the establishment of a constructive rapport between the salesman and the buyer.

It is important for a buyer to have absolute trust in the salesman's ability to instigate the right kind of action at the right time. The reliability of pre- and post-sales support is usually as important to a buyer as the product itself. He needs to be convinced that if something goes seriously wrong the company in general, and the salesman in particular, will have the organisational flair and reliability to sort out the problem.

This kind of judgment is usually made on the basis of apparently inconsequential manners such as the salesman's ability to arrive for appointments at the right time, act promptly on requests for information or assistance and keep the client informed of all developments.

The Oxford Dictionary describes empathy as the power of projecting one's personality into (and so fully comprehending) the object of contemplation. In the context of selling this refers to the establishment of communications at the personal level and implies not only an understanding of the buyer's need but also a real sympathy with his situation. This demands sales sensitivity and an altruistic attitude.

The buyer needs to believe that the salesman really cares — and if he doesn't he shouldn't be in the job.

Buyers seldom do business with salespeople who are in any way disrespectful towards them or fail to satisfy the common courtesies of business practice.

Salespeople must, by virtue of their actions, command a high level of personal respect from their clients in order to secure a continuing business relationship as well as the maintenance of the existing revenues. This can only be achieved by adopting a code of personal behaviour and ethical standards that are consistently beyond reproach.

Dress usually has a significant bearing on individual personality. Certainly the first judgment usually made by a potential buyer is a subjective assessment of the salesperson concerned as a result of the initial impact of personal presentation. Neat and tasteful clothes suggest someone who is reliable and efficient; scruffy or casual dress usually means the opposite. Whether or not the truth is different, inappropriate dress can create an unnecessary initial emotional hurdle.

If the best salesman in the business suddenly took to wearing a jock-strap and bowler-hat he would probably never make another sale; unless, of course, he switched to selling jock-straps and bowler-hats.

People like to know where they stand and have respect for people who make their situation and intentions absolutely clear. It is essential that salespeople quickly establish their reason for calling and their credentials as bona fide representatives of their company. There should never be any doubt that their reason for calling is to sell something and that the opportunity to present the reason for buying is truly appreciated.

That's all for now. Next week will see the conclusion of this piece on professional credibility which will touch on the role that product and applications knowledge plays in this process as well as the effect of the company image, or even lack of it, on the status of the individual sales person.

Alan Williams

COURSES

Introduction to systems

■ Several training courses are to be held by LMBS over the next few months: Minicomputers, Distributed and Standalone Systems is designed for system designers and managers, and may be useful to non-DP staff familiar with the basics of computing. The course will be in London from March 11-13, and costs £205 + VAT. User Involvement in Computing provides an introduction to computer systems, DP and system development and again costs £205 + VAT and will be held in London. This course takes place from March 18-20. A course which aims to provide techniques, documentation and a project control system, called Project Management and Control will be held in London from March 24-27. The fee is £260 + VAT. For further information on these and other courses contact the registrar on 01-637 9699.

■ The benefits of word processing will be examined in a one-day course in London on March 26. Organised by BIS Applied Systems, the course is aimed at departmental managers and senior DP or O&M staff who need to become familiar with word processing. Emphasis will be on establishing selection criteria for hardware and vendor, and linking word processing to other developments. The fee is £130 + VAT. Details from Jackie Preuss on 01-261 9237.

PUZZLE ANSWER

IF there is only one (n) regional rep, the probability is zero. With $n=2$, this probability increases by $1/2!$ and becomes $1/2$. With $n=3$ the probability decreases by $1/3!$ and is then $1/3$. Then $n=4$ gives an increase of $1/4!$, up to a total of $3/8$; and $n=5$ loses $1/5!$ and results in $11/30$.

So if n becomes a very large number, we get the series $1/2! - 1/3! + 1/4! - 1/5! + 1/6! - 1/7! \ldots = 1/e = 0.367894$ (to seven decimal places).